SEP 10 1923

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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $6.00 — PUBLISHED WEEKLY — Single Copies, 20 Cents

VOLUME 81, No. 10 — 535 North Dearborn Street, CHICAGO, ILL. — SEPTEMBER 8, 1923

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 81, NO. 10 CHICAGO, ILLINOIS SEPTEMBER 8, 1923

THE PRESENT SCOPE OF UROLOGY*

HENRY G. BUGBEE, M.D.
NEW YORK

While it is a short word, "scope" has a broad meaning, namely, (1) object, (2) opportunity for action, and (3) extent or sweep. What is the scope of urology today? Are we urologists living up to our possibilities?

Our object should be to acquire an accurate and extensive knowledge of the urinary tract, its physiology, pathology and resulting symptomatology, and to apply judgment and skill in the eradication of the lesions presented, with the lowest possible mortality and morbidity. The opportunity for action is large, being present throughout the patient's life, and the extent of the field, with its various ramifications, presents a close interlocking with general medicine and the other specialties. In other words, the urologist, with his special knowledge, must view the patient through the eyes of the general practitioner.

There are certain points regarding present-day specialization which are possibly more pertinent to urology than to any other specialty. Why has urology been one of the last of the major specialties to become recognized as a definite branch of medicine and surgery? Has it not been due to the fact that the organs involved are so vital and so intimately connected with the remainder of the body that judgment in treating diseases, as well as skill in operating on lesions, is essential to the proper management of urologic cases?

Not until instruments of precision requiring special skill for their manipulation and wide experience for the correct interpretation of findings made possible the intimate study of the urinary tract was urology recognized. Even today, a considerable percentage of the profession at large accepts the special information acquired in a given case by the urologist, and applies the necessary therapeutics and mechanical therapy.

How may the urologist strengthen his position? While many of the intricate problems of urology have been solved by the urologist through his special knowledge and skill acquired by intensive study and repetition in manipulation, he must maintain a close association with general medicine and the other specialties in order to acquire a proper perspective. A realization of the close relationship between the urinary tract and the remainder of the body is most important. Laboratory and mechanical tests must be given their relative value; surgery must be employed with judgment, and the patient must be considered as a human being. Sometimes the latter is forgotten in the zeal for applying new methods of diagnosis and therapy.

Researches resulting in the elucidation of urologic problems and results from special therapy and operations must, in the hands of the urologist, be so far superior to those attained by others that there will be no question of his position in the profession today.

Unquestionably, cooperation should be the guiding spirit in our work. If the urologist can add a link to the working knowledge of an intricate case, or by some special manipulation aid in the relief of symptoms, he may be filling his position in practice. The attitude of either assuming command in a case or standing aloof is often contrary to the best interest of the patient and the profession; yet, on the other hand, the profession should recognize not only special knowledge but also the value of its application and the skill of the specialist, allowing the patient to benefit by such when the individual urologist has proved his worth.

While group medicine presents many advantages, these possibilities must be considered: the tendency to study the patient in sections in a more or less disconnected manner, rather than as a whole; to study the pathologic condition to the exclusion of the physiologic; to rely on laboratories and technicians to the exclusion of a careful study of the patient, his environment and temperament, and to separate treatment from diagnosis. I would not minimize the necessity for obtaining all possible data regarding a case so long as the methods employed are to the benefit of the patient and are not experimental or those involving possible harm.

The making of routine pyelograms, the extensive use of pneumoroentgenography, cystoscopic manipulations roughly carried out at improper times, as in the presence of acute bladder infections or pronounced congestion of the prostate, the performing of pelvic lavage as a routine in all acute kidney infections without previously employing medical treatment, and the performing, as a routine, of radical operations on prostate, bladder or kidney, when in selected cases a step-by-step procedure practically elminates the operative risk, are manifestations of poor judgment and will work to the detriment of urology.

In no other class of cases is it more important to obtain a complete history and to carry out a thorough physical examination. The close association between urologic pathology and disturbed physiology, as well as pathologic lesions of other organs of the body, has been proved beyond doubt. The study and care of urologic cases by the urologist in the general medical and surgical wards of the hospital rather than in special wards are often beneficial, as they foster a closer

* Chairman's address, read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

association of the urologist with the general staff and an opportunity of teaching the interns and nurses. In other words, any association which broadens one's vision by personal contact with those engaged in other branches of practice means a better urologist and better care of the urologic patient.

A word regarding certain present-day urologic studies may not be out of place. First, I would mention the field of urology in children. Congenital lesions of the urinary tract are not uncommon. Many children die with unknown pathologic conditions. Malformations which might have been corrected if recognized early often are discovered only when permanent kidney damage has resulted. Renal infections and urinary calculi in children are of frequent occurrence. Cystoscopy in children is as satisfactory as in adults. This field should be broadened in the next few years by more extensive and careful study, thus helping to clear up the pathology and treatment of these vital conditions which may appear at any time after birth.

The proper teaching of sex hygiene would go far toward controlling the spread of venereal disease, the treatment of which should be preventive rather than actual. The realization of the value of maintaining good bodily health by certain fixed principles of proper intake, body elimination, exercise, prevention of focal infections by the care of the teeth and tonsils, and the early discovery of tuberculous foci will go far toward eliminating the urologic lesions of early adult and middle life, such as kidney infections, calculi and tuberculosis.

Instruction of the obstetrician as to the causation of kidney infections and elimination of such factors, the proper prophylaxis and a more careful study of the urinary tract at the outset of pregnancy will go far toward preventing complicating infections of the child-bearing period.

When the laity reaches the point at which it has confidence in the knowledge and stability of the urologist and appreciates the value of a periodic examination and a urinalysis by him, many lesions will be discovered and eradicated in their incipience. How important this will prove to be in prostatic disease, new growths, calculi and infections.

In new growths of the prostate and bladder we have a problem which can be solved only by careful study and technic and by honest reports of cases, with such observations extending over sufficient periods of time. Each line of treatment, whether by surgery alone or by a combination of surgery, radium and deep therapy, must be considered without prejudice. Patients with these distressing conditions must be taken into the confidence of the urologist. False hopes should not be aroused, yet in each individual case the measures that promise the best results should be instituted, and the one aim in view should be that of ultimately curing the patient.

Prostatic surgery has been placed on a high plane, owing to cognizance of the fact that it is not a local disease. While removal of the gland causing obstruction will ultimately, in a large percentage of cases, cure the patient, the obstruction has brought about a systemic condition, the former lack of appreciation of which retarded progress in the proper handling of such cases until the urologists, step by step, have established a monument to the specialty.

Instruments of precision may easily become instruments of confusion when unguided by intellect. How true this is of cystoscopy. The hands of a surgeon are necessary for the proper manipulation of the cystoscope, and only the knowledge gained by a wide experience, balanced by good judgment, will tell to what extent cystoscopic manipulations are justifiable. Information gained from cystoscopy must be correlated with sound judgment.

Bladder surgery has been revolutionized by cystoscopy; kidney and ureteral physiology, pathology and treatment, both intra-ureteral and renal, as well as the surgery of the upper urinary tract, are largely precise and scientific. Owing to cystoscopy and roentgenography, knowledge of the interrelation between kidney and systemic disease and a working knowledge of the urinary tract in its entirety are constantly being elevated to a higher plane.

Bladder ulcer, supposedly cured only by resection, is now recognized as a secondary lesion which recurs unless the primary focus of infection is eliminated. Variations in the caliber of the ureters are better understood, owing to progress in experimentation and research and the broader vision of the urologist, especially in the study of the female urinary tract. Many ureteral calculi are allowed to pass or are aided in their descent by manipulation. Few movable kidneys are treated by operation; but the influence of such a condition on diseases of the kidney is better understood. Seldom is a kidney operated on for infection without a working knowledge of the causes of infection leading to other parts of the body. Not all renal calculi are removed; and tuberculosis of the urinary organs is regarded as a surgical condition in a tuberculous patient, both of which require the proper care. Rare lesions are being constantly reported, some isolated in the urinary tract and brought to light by superimposed pathologic findings; others as part of a systemic condition discovered through thorough examinations.

Where is there a more fascinating or broader field for work, a field requiring more breadth of knowledge and vision, better judgment and greater skill? It is a specialty that cannot be entered lightly. A thorough groundwork in the theory and practice of general medicine, surgery and pathology is an essential foundation for superimposed special knowledge and skill. A specialty recognized by the profession only through deeds can be maintained only by continued study of the intricate problems involved (in close association with those in other branches of the profession), such problems being always considered in their relation to the body as a whole; also by an exhibition of rare judgment in the handling of medical and surgical conditions of the greatest complexity and gravity and by producing results.

40 East Forty-First Street.

"Cures" of Hay-Fever.—Unless the physician is familiar with the natural course of hay-fever and the influence of weather and other extraneous conditions, the apparent beneficial results of treatment may be misleading. The numerous so-called "cures" of hay-fever depend mainly on these natural causes for their apparent benefits. In no other disease is it so important to take cognizance of the numerous circumstances that may affect the course of hay-fever, and the successful immunologist should be fully equipped for making careful records in order to attain success in the mastery of this disease.—*Pub. Health Rep.* **38**:1574 (July 13) 1923.

THE TOTAL AND THE NITROGENOUS METABOLISM IN EXOPHTHALMIC GOITER *

WALTER M. BOOTHBY, M.D.
AND
IRENE SANDIFORD, PH.D.
ROCHESTER, MINN.

Friedrich Müller,[1] in 1893, demonstrated a general increase in metabolism in exophthalmic goiter by showing that a patient with this disease lost weight and nitrogenous substances on a diet more than sufficient to prevent such losses in a normal individual. Since that time the conception has been prevalent that the increase in the basal metabolism is generally accompanied by, and even dependent on, an increase in the rate of destruction of the patient's own protein tissue. However, as shown by the studies of Magnus-Levy,[2] of Falta [3] and of Du Bois,[4] who likewise have presented summaries of the subject, an increased protein destruction does not always occur, and these authors are rather guarded in their conclusions. Magnus-Levy says:

> Sometimes, at least, a deleterious influence is exerted by the disease upon the protein metabolism. To establish a state of nitrogenous equilibrium it is necessary not only to increase the intake of calories enormously, but especially to increase the intake of protein much more than in health. When a loss of protein occurs in disease independently of a diminution of diet, it is usual to designate this loss as of "toxic" origin. This is also the customary explanation in Graves' disease. But by the term "toxic protein distintegration" it must not be meant that such a process is invariable, and that it cannot by any means be avoided. Indeed, May has shown by his experiments upon animals suffering from fever that loss of protein can be prevented. And other observers have proved the same thing in Graves' disease, especially where a state of superalimentation is induced.

On account of the importance of a correct understanding of the total and the nitrogenous metabolism in exophthalmic goiter, from both the practical and the theoretical points of view, it was thought advisable to reinvestigate the subject. For this purpose a small metabolism ward of four beds was established adjoining the metabolism laboratory, and with its own special diet kitchen. In this ward nine patients, who had marked and unquestionable exophthalmic goiter, have so far been studied. The food was prepared from known recipes, the ingredients of which were weighed, and its protein, fat, carbohydrate and total calory value calculated from Atwater and Bryant's tables. In the later experiments, some of the principal items comprising the diet were analyzed for nitrogen by the Kjeldahl method; the fats were determined by ether extraction and the carbohydrate estimated by difference from the determination of the total calorific value found by combustion in a Parr adiabatic bomb calorimeter. As considerable use was made of "40 per cent." cream in the construction of the diet, the cream was analyzed daily for the fat content by the Babcock method. All food not eaten was reweighed, and the corresponding calories were deducted.

Every effort was made to insure the completeness of the twenty-four hour urine specimen. Male subjects are greatly to be preferred, not only on account of ease in collecting the entire quantity of urine, but also because the loss of nitrogenous material at the time of menstruation is avoided. Each day the total nitrogen of the urine was determined by the Kjeldahl method, and the urea nitrogen, ammonia nitrogen, creatinin, uric acid and sugar by the Folin method; occasionally the amino-acid nitrogen (Folin) was likewise determined. On each patient a complete blood analysis by the Folin system was made at short intervals throughout the period of investigation. The basal metabolic rate and respiratory quotients were determined in duplicate periods each day, except immediately after operation, by the open or gasometer method, with analysis of the expired air according to the technic that we have previously described.[5]

TABLE 1.—*Total Metabolism Experiment in Case 9*

Date	Weight, Kg.	Respiratory Quotient	Basal Metabolic Rate, per Cent.	Basal 24 Hour Calories	Average Daily Food Intake: Calories	Protein, Gm.	Fat, Gm.	Carbohydrate, Gm.	Excreta Nitrogen, Gm.	Nitrogen Balance, Gm.
4/24/23	64.4	0.72	+94	3,112	.....	..	...	...	....	.....
4/27/23	62.4	0.81	+95	3,079	.....	..	...	...	....	.....
4/28/23	62.0	0.76	+67	2,609	3,745	64	228	351	15.7	—5.5
4/29/23	....	....	....	.....	4,346	82	275	354	16.0	—2.9
4/30/23	63.0	0.75	+58	2,507	4,592	80	292	378	10.0	+2.8
5/ 1/23	62.5	0.78	+60	2,505	4,548	78	289	377	8.4	+4.1
5/ 2/23	62.9	0.80	+50	2,368	4,704	81	304	378	8.8	+4.4
5/ 3/23	62.7	0.78	+50	2,363	5,009	86	305	445	8.1	+5.7
5/ 4/23	62.4	0.72	+52	2,380	4,700	65	323	350	6.9	+3.5
5/ 5/23	62.3	0.75	+47	2,318	4,731	67	311	382	6.4	+4.3
5/ 6/23	....	....	....	.....	4,968	71	297	467	6.5	+4.9
5/ 7/23	Ligation left superior thyroid artery						...	...	2.9	—2.9
5/ 8/23	....	....	....	.....	2,076	50	153	110	9.3	—1.3
5/ 9/23	....	....	....	.....	4,223	61	258	384	7.5	+2.3
5/10/23	....	....	....	.....	3,983	60	272	294	3.9	+5.8
5/11/23	62.9	0.88	+28	2,028	4,294	59	285	342	7.4	+2.1
5/12/23	62.9	0.77	+43	2,254	4,079	71	239	379	7.9	+3.5
5/13/23	....	....	....	.....	4,446	68	264	418	7.8	+3.1
5/14/23	Ligation right superior thyroid artery						...	...	4.8	—4.8
5/15/23	....	....	....	.....	2,805	56	179	222	6.8	+2.1
5/16/23	....	....	....	.....	4,572	65	313	340	8.0	+2.5
5/17/23	62.1	0.76	+42	2,220	3,466	60	213	302	8.9	+0.7
5/18/23	62.3	0.75	+32	2,082	.....	..	...	...	...	.....

The feces were not analyzed, nor was any attempt made to determine the quantity of nitrogen lost by sweating or desquamation. In calculating the nitrogen balance, 10 per cent. of the food nitrogen was added to the urinary nitrogen, and the result assumed to be the total nitrogen elimination.

In reviewing the accuracy of our data as regards the nitrogen ingested and eliminated, it seems probable that the average error in the nitrogen balance is approximately 1 gm.; only occasionally can this error materially exceed 2 gm. The error was estimated as follows: No material error occurs in the Kjeldahl determination of urinary nitrogen, and accidental errors were excluded by making duplicate determinations. With the precautions taken in collecting the urine, it would be impossible in any case to lose more than 10 per cent., while in the greater number it is unlikely that the loss, on the average, exceeded 1 per cent. The estimation of the fecal nitrogen at 10 per cent. of the food nitrogen is probably in most cases correct within plus or minus 5 per cent.; it certainly would not exceed 20 per cent. of the food nitrogen in any case. Although

* From the Section on Clinical Metabolism, Mayo Clinic.

* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

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3. Falta, W.: The Ductless Glandular Diseases, Philadelphia, P. Blakiston's Son & Co., 1915, pp. 75-80.

4. Du Bois, E. F.: Metabolism in Exophthalmic Goiter, Arch. Int. Med. **17**: 915-964 (June) 1916.

5. Boothby, W. M., and Sandiford, Irene: Laboratory Manual of the Technic of Basal Metabolic Rate Determinations, Philadelphia, W. B. Saunders Company, 1920.

patients with exophthalmic goiter perspire freely, only occasionally is the skin more than moist, even in summer time, under conditions of resting in bed, so that the error produced by neglecting this factor, could not, according to the available data on skin elimination, exceed on the average 0.1 gm. daily. Such precautions were taken in analyzing important items of the food, and in preparing and weighing the diet, that an error in the estimation of the nitrogen of food could hardly exceed plus or minus 10 per cent. of the total, and for the long periods studied it seems highly probable that the average error would be much smaller. While the sum of all these errors may be slightly more than 2 gm., yet they will rarely be all in one direction, and will thus offset one another.

protein than was used in the majority of instances. Even those diets containing more than 100 gm. of protein would, if based on the amount of food ordinarily served to hospital patients, have a protein content in the region of 50 gm.; for example, the 136 gm. of protein in 5,403 calories of the first period for Case 3 would be equivalent to only 50 gm. in a 2,000 calory diet.

There was only occasionally a negative nitrogen balance: this was unimportant if it occurred immediately following a sudden and marked reduction in the protein intake, but might be of more fundamental significance if it occurred as a result of a gastro-intestinal crisis, such as followed the first ligation in Case 4. Although the gastro-intestinal crisis was of

TABLE 2.—*Total Metabolism in Nine Patients with Exophthalmic Goiter*

Case	Sex*	Age, Years	Comment†	Duration of Period, Days	Weight, Kg.	Respiratory Quotient	Basal Metabolic Rate, per Cent.	Basal 24 Hour Calories	Average Daily Food Intake: Calories	Protein, Gm.	Fat, Gm.	Carbohydrate, Gm.	Excreta Nitrogen, Gm.	Nitrogen Balance, Gm.	Average Daily Loss or Gain in Weight, Gm.
1	♀	56	Roentgen-ray treatments	20	46.7	0.77	+40	1,703	2,885	92	130	341	8.7	+6.1	+135
2	♀	35	Period includes two ligations	23	48.3	0.77	+50	1,924	3,654	111	172	391	14.8	+2.2	0
3	♀	20	Before surgery	11	42.8	0.76	+84	2,171	5,403	136	323	448	15.2	+6.6	
			After hot water injection	6	45.2	0.78	+72	2,092	4,956	117	297	419	13.8	+4.9	+224
			After first ligation	4	44.0	0.75	+78	2,138	4,389	99	267	366	11.5	+4.3	0
			After second ligation	9	44.3	0.77	+55	1,864	3,696	83	220	320	8.3	+4.9	0
				— 30											
4	♀	36	Before surgery	11	46.7	0.77	+61	1,953	3,510	80	188	350	11.5	+1.2	0
			After ligation left superior	18	44.5	0.76	+57	1,870	2,057	57	104	207	10.3	−1.3	−200
			After ligation right superior	7	42.5	0.80	+47	1,708	1,868	58	80	187	6.2	+3.1	0
			After double inferior ligation	5	41.6	0.74	+45	1,661	1,434	42	74	139	6.1	+0.6	−440
				— 41											
			Three months later	6	53.0	0.75	+44	1,836	2,598	83	155	201	10.7	+2.5	0
			After thyroidectomy	7	51.7	0.78	+20	1,521	1,645	47	85	159	7.2	+0.4	−157
				— 43											
5	♀	41	First period before surgery	7	28.5	1.00	+55	1,507	3,209	93	189	305	6.7	+8.1	+128
			Second period before surgery	7	30.3	0.93	+56	1,567	3,306	93	164	341	7.1	+7.8	+371
			Third period before surgery	7	31.8	0.89	+67	1,724	4,247	110	234	396	9.3	+8.2	+86
			Fourth period before surgery	7	33.3	0.95	+66	1,736	3,528	99	199	285	9.5	+6.4	+257
			Fifth period before surgery	5	33.6	0.81	+42	1,487	3,721	109	214	315	9.7	+7.7	0
				— 33											
6	♂	44	First period before surgery	5	54.0	0.77	+75	2,606	3,372	100	191	291	15.0	+1.0	0
			Second period before surgery	6	53.9	0.79	+62	2,417	4,037	121	226	362	14.1	+5.3	0
			After first ligation	7	54.8	0.82	+62	2,412	3,967	121	212	371	13.5	+5.9	+86
			After second ligation	8	54.0	0.77	+92	2,854	3,350	107	186	292	15.6	+1.5	−100
				— 26											
7	♀	31	Before surgery	5	48.9	0.82	+70	2,098	3,617	84	173	406	12.1	+1.4	0
			After first ligation	8	48.5	0.81	+53	1,888	3,523	81	151	434	9.2	+3.8	0
			After second ligation	3	48.8	0.83	+47	1,815	3,361	82	153	390	10.0	+3.1	0
				— 16											
8	♀	15	Previous to pyelitis	18	27.3	0.76	+31	1,445	1,323	34	62	149	4.3	+1.6	−144
			After onset of pyelitis to death	24	....	0.75	+29	1,400?	1,020?	29?	51?	105?	4.9?	−0.2?	
				— 42											
9	♂	48	Before surgery	9	62.5	0.76	+55	2,449	4,594	75	202	387	9.6	+2.4	0
			After first ligation	7	62.9	0.83	+36	2,161	3,300	53	210	275	6.7	+1.8	+86
			After second ligation	4	62.2	0.76	+37	2,165	2,711	45	176	216	7.1	+0.1	−200
				— 20											

* In this column, ♂ indicates male; ♀, female.
† In this column is indicated the main form of treatment that the patient underwent during that period; with the exception of Case 4, in which there was a three months' interval between two studies, all the periods were consecutive.

Although the complete data from the experiments are voluminous, the main points can be derived from the essential data in one case given in Table 1, and from the summary of the results of the nine cases presented in Table 2.

The outstanding and essential fact is that, on a protein intake varying between 34 and 136 gm., it was possible to maintain at least nitrogen equilibrium, and usually to obtain a positive nitrogen balance well in excess of the probable maximum experimental error, provided sufficient carbohydrate and fat were likewise administered. On account of the decreased weight of the subjects, the protein intake varied, as a rule, between 1 and 2 gm. for each kilogram; in a few instances, a little more than 3 gm. for each kilogram was given. The proportion of protein was, however, very low when compared with the mass of food taken, and it proved exceedingly difficult to provide large, appetizing and attractive diets, which would appeal to the patient for many days, with less

toxic origin, yet the negative nitrogen balance was due to failure or, rather, inability to take food, and therefore should not be looked on in the light of a primary toxic protein disintegration, but as similar to the negative nitrogen balance always found during starvation. In this case the total nitrogen eliminated corresponded quite closely to that found by Benedict [6] in his experiment on prolonged fasting in a normal person.

Another important fact shown by these experiments is the large number of calories of fat and carbohydrate necessary to prevent loss of body weight, even when nitrogen equilibrium is maintained.

As shown in Table 2, these patients with exophthalmic goiter ingested, in many instances for long periods, a daily ration greater than that supplied to soldiers in the field on active duty. Considering that the patients were usually weak, small and emaciated, and were in bed, or at the most up for only a few hours each day,

6. Benedict, F. G.: A Study of Prolonged Fasting, Washington, 1915, Carnegie Inst., Pub. 203.

the average daily total calories necessary to prevent loss of weight is exceedingly high. Most of the patients weighed less than 50 kg., so that the number of calories for each kilogram is particularly high.

The ingestion of very large amounts of food has been termed "bulimia," and the general impression obtained from most references on the subject is that it is usually a manifestation of an hysterical neurosis, or a psychosis. Such an interpretation cannot be denied as a possibility in insane persons, but it should be adopted only as a last resort, and after careful basal metabolic rate determinations have been made, and the probability of the presence of an unrecognized syndrome of exophthalmic goiter or adenomatous goiter with hyperthyroidism considered. No case of "idiopathic bulimia" of hysterical origin has passed through the Mayo Clinic, during the last three years. The idea that the excessive appetite in patients with exophthalmic goiter was an hysterical manifestation probably arose from misinterpreting the nervous manifestations of patients with exophthalmic goiter as primary, and from overlooking the fact that these individuals were hyperthyroid with an increased metabolism, and in consequence required large amounts of food to maintain existence. Like the increased

TABLE 3.—*Calory Balance Sheet: Food Intake and Calculated Expenditure*

		Calories
Food consumed (average for 17 days)		5,245
Estimated metabolism:		
Basal requirement	2,150	
Protein deposit, 38 gm.	156	
Fat deposit, 115 gm.	1,070	
Specific dynamic action of food	525	
Thirty per cent. of basal for movements	645	
Total		4,546
Balance to be accounted for		699

action of the heart in exophthalmic goiter and in adenomatous goiter with hyperthyroidism, the increased appetite and food consumption are to be regarded, in the main, as a normal physiologic response of the organism to the demands made on it.

The results of the blood chemistry studies made at frequent intervals during the course of these experiments, supplemented by the data obtained in many other cases, were entirely negative, and showed no variation significant of an alteration in the character of the intermediary metabolism. The concentration in the blood was within normal limits for urea, creatinin, amino-acids, nonprotein nitrogen and sugar.

As soon as it was established that patients with exophthalmic goiter actually required such large amounts of food, an attempt was made to account for the excess intake. For example, in the first two periods of Case 3 there is a daily average gain in nitrogen of 6 gm., equivalent to 38 gm. of protein (forming 109 gm. of flesh), or 156 calories. Assuming the daily gain in body weight of 224 gm., except that accounted for by flesh, to be due to fat, then the amount of fat deposited will amount to 115 gm., or 1,070 calories. It is usually estimated that the basal metabolism is elevated approximately 10 per cent. by specific dynamic action of food; it is probably safer to assume, however, that 10 per cent. of the food intake is lost in the specific dynamic action; therefore, probably about 500 calories can be accounted for in this manner. With normal individuals in bed, it may be assumed that the energy expended in movements is less than 10 per cent. of the twenty-four hour basal heat production; a liberal allowance for the extra movements of patients with exophthalmic goiter would be twice this or 20 per cent.; another 10 per cent. might be added, if the patient is up and about the room, making a total of 30 per cent. The probable total metabolism in round numbers can, therefore, on the foregoing assumptions, be computed as shown in Table 3.

TABLE 4.—*Cost of Work Expressed at Net Gram Calories for Each Horizontal Kilogram-Meter*

Diagnosis	Cases	Average Basal Metabolic Rate	Gm. Calories for Each Horizontal Kilogram-meter	Deviation From Normal
Normal	5	−10	1.20	....
Diabetes mellitus	4	−13	1.09	−10
Myelogenous leukemia	2	+20	1.10	− 8
Anorexia nervosa	1	−22	1.12	− 7
Lymphatic leukemia	1	+65	1.19	− 1
Addison's disease	1	− 8	1.27	+ 6
Chronic nervous exhaustion	1	+ 5	1.34	+12
Myxedema	5	−28	1.26	+13
Hypertension	3	+ 4	1.43	+19
Carcinoma of the thyroid	1	+43	2.31	+93
Exophthalmic goiter	12	+52	2.24	+87
Adenoma with hyperthyroidism	1	+47	2.86	+138

A total estimated metabolism of 4,546 calories is, with slight changes, the maximal amount that can be accounted for by the ordinarily accepted methods of calculation. In this instance, as the daily average food intake for seventeen days was 5,245 calories, 699 calories daily remains unaccounted for; and unless the order of magnitude of one of the assumed values used in the calculations in Table 3 is altered, it is impossible to see how so much food could have been utilized day after day.

TABLE 5.—*Cost of Work in a Case of Exophthalmic Goiter (S. H., a man, aged twenty-five years)*

Date	Weight, Kg.	Respiratory Quotient	Total Calories for Each Hour	Metabolic and Basal Metabolic Rate, per Cent.	Steps for Each Minute	Horizontal Kilometers for Each Hour	Net Gram Calories for Each Horizontal Kilogram-meter
12/ 7/22	70.2	0.81	115	+ 59	..	.....	....
12/ 9/22	70.0	0.78	122	+ 71	..	.....	....
12/11/22	69.0	0.79	114	+ 59	..	.....	....
		0.81	232	+221	30	0.791	2.16
12/12/22	70.5	0.74	104	+ 44	..	.....	....
		0.86	217	+199	27	0.787	2.04
		0.78	219	+201	24	0.787	2.07
12/13/22	69.9	0.79	108	+ 51	..	.....	....
12/14/22	Thyroidectomy						
12/18/22	66.1	0.74	104	+ 48	..	.....	....
12/20/22	65.8	0.76	88.1	+ 25	..	.....	....
		0.76	179	+156	26	0.797	1.73
		0.74	180	+156	24	0.800	1.75
12/21/22	66.8	0.74	87.6	+ 24	..	.....	....
12/22/22	67.2	0.79	83.6	+ 18	..	.....	....
		0.74	179	+152	24	0.802	1.77
12/23/22	67.5	0.82	87.0	+ 22	..	.....	....
		0.78	171	+140	25	0.802	1.55
12/26/22	68.5	0.85	80.9	+ 12	..	.....	....
		0.81	161	+124	24	0.791	1.48
12/27/22	69.0	0.82	79.3	+ 10	..	.....	....
		0.89	156	+116	25	0.793	1.40
12/28/22	69.9	0.84	76.6	+ 6	..	.....	....
		0.87	156	+116	24	0.797	1.43
12/29/22	69.5	0.90	78.1	+ 8	..	.....	....
		0.84	150	+121	24	0.797	1.46
12/30/22	69.6	0.89	77.3	+ 7	..	.....	....
		0.82	151	+108	24	0.785	1.35

It was for the purpose of clearing up this discrepancy that, on the suggestion of Plummer,[7] it was determined to find out whether or not the human machine, when hyperthyroid, possesses its normal efficiency, or whether it might prove to be, under these circumstances, a very inefficient mechanism. Therefore, the cost of work

7. Plummer, H. S., and Boothby, W. M.: The Cost of Work in Exophthalmic Goiter, Am. J. Physiol. **63**: 406-407 (Feb.) 1923.

was measured by determining the metabolism while walking at a constant rate on a treadmill, on five normal subjects, on eighteen patients having miscellaneous types of diseases, and on fourteen patients having either exophthalmic goiter or adenomatous goiter with hyperthyroidism, including one with carcinoma of the thyroid. The results, expressed as net gram-calories for each horizontal kilogram-meter, are summarized in Table 4, and the essential data on one subject are given in Table 5.

These results show that patients with severe exophthalmic goiter and adenomatous goiter with hyperthyroidism are hardly more than one half as efficient in their muscular movements as are normal persons, and therefore require approximately twice as many calories to perform a given piece of work, such as turning over in bed, and raising the arms. Consequently, in the calculation, we are justified in doubling the number of calories utilized by these patients in their movements in bed and around the room, making 1,290 calories. If 1,290 calories is substituted for 645 calories in Table 3, the total amounts to 5,191 calories, which approximately balances the food intake of 5,245 calories. In exophthalmic goiter, the very high calory diet needed by these patients to maintain weight can, therefore, be accounted for, provided allowance is made in the calculation for muscular inefficiency as well as for the increase in the basal metabolism.

REPORT OF CASES

CASE 1.—Mrs. J. L. F., aged 56, came to the clinic in January, 1920, having had symptoms of exophthalmic goiter for three years. Her weight was only 102 pounds (46 kg.), in spite of considerable edema of the extremities. Marked auricular fibrillation and cardiac dilatation were present. The basal metabolic rate was + 45. The left superior thyroid artery was ligated, February 3, and the right, February 10, with only moderate reactions. The patient was dismissed from the hospital, February 18, with instructions to return in three months for thyroidectomy. While at home she did not improve much, and the cardiac decompensation increased. When she returned, May 14, her cardiac condition was serious, with auricular fibrillation, a heart rate of from 205 to 216, marked pulse deficit, edema and ascites. The basal metabolic rate ranged from + 70 to + 50. Under rest and roentgen-ray treatment, she gradually improved, and thyroidectomy was performed, Feb. 21, 1921, with only a moderately severe reaction. She left the hospital, March 28, with a basal metabolic rate of + 29. The metabolism studies in this case were carried out between Dec. 1 and 21, 1920. The gain in weight was somewhat masked by variation in the extent of the edema and ascites.

CASE 2.—Mrs. C. A. N., aged 35, entered the clinic, Dec. 30, 1920, having had symptoms of exophthalmic goiter for four months. She had lost considerable weight (106 pounds, or 48 kg.) and her basal metabolic rate was 80 per cent above normal. Ligations of the superior thyroid arteries were performed, January 18 and February 1, and on February 6 the patient was dismissed with instructions to return in three months. On her return, May 28, 1920, her condition was much improved, a thyroidectomy was promptly performed, and she was dismissed shortly afterward. The metabolism studies reported were carried out at the time of her first visit between January 14 and February 5, and included the period in which the ligations were performed. She had a large positive nitrogen balance, with gain in weight, except for several days following each ligation, when loss in weight and a negative balance occurred on account of the restriction of food necessary at those times.

CASE 3.—Miss V. W., aged 20, entered the clinic, June 30, 1921, having had symptoms of exophthalmic goiter for seven months. She had a basal metabolic rate in the eighties and nineties, and on one occasion it was + 108. She weighed only 65 pounds (29.5 kg.). She had several roentgen-ray treatments, and slow but steady improvement was evidenced chiefly by gain in weight. The basal metabolic rate had quite rapidly dropped to the eighties, and remained in that region until after the second ligation, November 5, when it rapidly dropped to + 51 and + 49 per cent. She was allowed to go home, November 14, and she returned, Feb. 17, 1922, greatly improved. The basal metabolic rate was in the low twenties, and she had gained 40 pounds (18 kg.). Thyroidectomy was performed in a few days, and the patient was dismissed from the hospital seven days later. The metabolism studies reported were made between October 16 and November 14, a period which included three surgical procedures. The period before operation was one of marked improvement clinically, with gain in weight and positive nitrogen balance. The patient's appetite was ravenous, she enjoyed her large diets, and she appeared to be greatly benefited thereby. She was not urged to eat more than she desired.

CASE 4.—Mrs. F. K., aged 36, came to the clinic, May 29, 1922, having had symptoms of exophthalmic goiter for one year, with marked exacerbation during the last two months. She had an intense nervous type of hyperthyroidism, with a basal metabolic rate ranging from + 50 to + 70, and occasionally to + 75. June 15, the left superior thyroid artery was ligated; following the ligation there was a severe reaction with nausea, vomiting and restlessness. Twenty-four hours later, an attack of paroxysmal auricular flutter suddenly developed, and lasted three days. July 3, the right superior artery was ligated, and on July 10, both inferior arteries, without incident. July 16, the patient was dismissed from the hospital in good condition, with a basal metabolic rate of + 38 per cent. She returned to the clinic, October 17, greatly improved. She had gained 30 pounds (13.6 kg.), but there had been no further drop in the basal metabolic rate. Thyroidectomy was performed, October 27, and she was dismissed from the hospital in good condition, November 3, with a normal metabolic rate. This patient's metabolism was studied at both visits, totaling fifty-four days. It was possible to keep the weight constant, and to obtain a slight positive nitrogen balance on both occasions before operation. That there was a general improvement at the time of the second visit is shown by the fact that approximately 2,598 calories instead of 3,510 calories sufficed to maintain the weight and a nitrogen balance, on a protein intake which was essentially the same during the two studies (from 80 to 83 gm.). The effect of withdrawing food is illustrated in the period following the first ligation, when a negative nitrogen balance developed with loss in weight; this was particularly marked during the first three days, when the total calories amounted to only 77, 278 and 936 calories, with a protein intake of 0.5, 2 and 25 gm., and with a negative nitrogen balance of 12, 14 and 5 gm., respectively. The first part of this period illustrates the rapidity with which loss of weight can occur, and also shows that when the protein intake is suddenly reduced, a large negative nitrogen balance develops. However, as illustrated by a later case, as soon as equilibrium is established, the negative nitrogen balance is at least not large.

CASE 5.—Mrs. R. C., aged 41, entered the clinic, Aug. 23, 1922, having had symptoms of severe exophthalmic goiter since April, 1916. Her weight had dropped from 120 to 65 pounds (from 54.4 to 29.5 kg.), and she had been confined to bed for many months; in February, 1917, she had been operated on (probably ligations of the superior thyroid vessels). Following the operation, the patient had improved, and was well for five years. In June, 1922, the symptoms returned with great severity; she entered a hospital in Denver, and received radium treatment, August 5. On arrival here, August 23, her condition was desperate, and marked by nausea, vomiting, jaundice, intense nervousness and depression. She weighed only 59 pounds (26.8 kg.). Her basal metabolic rate was in the fifties. After slight improvement as the result of rest and the administration of iodin, the metabolism experiment here reported was started, and was continued for thirty-three days, during which time her general condition improved rapidly, and she gained 13 pounds (5.9 kg.). October 2, all four thyroid vessels were ligated, with only slight postoperative

reaction, although she mentioned once or twice slight tingling of the fingers, with transient cramps in the hands. October 8, she left the hospital in fine condition, with a basal metabolic rate that had decreased to + 38 per cent. March 5, 1923, she returned in excellent condition, her weight having increased to 95 pounds (43 kg.). Thyroidectomy was performed, March 12, with very slight postoperative reaction, although again she developed slight evidence of parathyroid tetany which was readily controlled by a milk diet. March 19, she was dismissed from the hospital.

March 23, the patient was readmitted to the clinic because of severe and typical parathyroid tetany. This was controlled with some difficulty by the administration of large doses of calcium lactate, and she was held in the hospital until April 22, when she was permitted to return home, still taking large doses of calcium lactate as well as parathyroid tablets. The metabolism studies illustrate the possibility of obtaining a large positive nitrogen balance which averaged 8.4 gm. daily on a diet containing 100 gm. of protein, and totaling 3,614 calories.

CASE 6.—J. F., a man, aged 44, entered the clinic, Oct. 16, 1922, having had definite symptoms of exophthalmic goiter for sixteen months. The condition may have been present for five years. During the last year he had been confined to bed a considerable part of the time; at intervals of about three months he appeared to have exacerbations. At no time had he had gastro-intestinal disturbances, and his loss in weight had not been excessive, as he had been able to take large quantities of food.

On admission, his basal metabolic rate was approximately 100 per cent. above normal, he was extremely nervous, and there was slight cardiac dilatation and decompensation. He improved quite rapidly, the nervousness diminished, and the basal metabolic rate decreased to the fifties following the administration of compound solution of iodin. November 3, the left superior thyroid artery was ligated; only slight reaction followed. Compound solution of iodin was not administered after the ligation, and there was a gradual increase in the basal metabolic rate from + 55, November 6, to + 76 and + 68 per cent., November 8 and 9. The right superior thyroid vessel was ligated, November 10, with considerably more reaction than after the first ligation. There was a progressive increase in the pulse rate, and an increase in the basal metabolic rate to + 106 per cent., November 14, on which day compound solution of iodin was again administered. This treatment was followed by a fall in the basal rate to + 63 per cent., November 18, when the patient was dismissed from the hospital. He returned, Feb. 22, 1923, somewhat improved, and having gained 5 pounds (2.3 kg.). His basal metabolic rate was + 86 per cent.; but after the administration of compound solution of iodin, it dropped to + 48 per cent., March 5, with marked clinical improvement. March 7, thyroidectomy was performed with only moderate reaction, and the patient was dismissed, March 14, in good condition, and improving rapidly. The metabolism studies reported were made on his first visit, between October 23 and November 17, a period which included his two ligations. Before operation, his weight was readily maintained, with a slight positive nitrogen balance, by moderately large diets of 3,372 and 4,037 calories, containing 120 and 121 gm. of protein. As he developed no reaction following the first ligation, improvement continued, and with the exception of the day of operation, he took over 4,000 calories, with a gain both in weight and nitrogen. After the second ligation, however, on account of the severe character of the reaction, which did not reach its height until the fourth day, there was loss of weight, and on three days a slight negative nitrogen balance, in spite of a protein intake of 100 gm. and 3,300 calories. The evidence obtained in this case of the favorable and beneficial effect of compound solution of iodin on the metabolic processes, intensity and toxicity of hyperthyroidism is quite striking.

CASE 7.—Mrs. A. E. L., aged 31, entered the clinic, July 3, 1922, having had definite symptoms of exophthalmic goiter for six months. The condition had probably existed for more than two years. Her general and cardiac condition were good, and there was only a moderate loss in weight. The basal metabolic rate was in the sixties. July 14, the left superior thyroid artery was ligated. Considerable improvement followed, and the basal metabolic rate dropped to the fifties. The right superior thyroid artery was ligated, July 22, and the patient dismissed from the hospital, July 26, in good condition. She was instructed to return in three months. Her weight and nitrogen balance were maintained on from 3,300 to 3,600 calories, and from 81 to 84 gm. of protein daily.

CASE 8.—Miss A. W., aged 15, entered the clinic, July 11, 1922, having had symptoms of exophthalmic goiter for seven months. For about a week before admission, she had had severe nausea and vomiting, and on entrance was in a severe gastro-intestinal crisis, with a basal metabolic rate of + 52 and + 61 per cent., and weighing only 67 pounds (30.4 kg.). There was some improvement during the next three weeks following the administration of compound solution of iodin, and one roentgen-ray treatment. Although she continued to lose weight (56 pounds or 25.4 kg.) and strength, her basal metabolic rate dropped nearly to normal. August 2, she had a severe chill, and her temperature suddenly rose to 105.8 (rectal), continued to vacillate around 104 for a week, and then gradually dropped to nearly normal until the prelethal elevation occurred. The compound solution of iodin was discontinued on the day of the chill. A gram-negative bacillus bacteremia was demonstrated shortly after the onset of the infection, and the diagnosis of pyelitis was made; this was later confirmed by necropsy. Up to the time of the pyelitis, our data are fairly accurate; after that date, on account of the vomiting and incontinence, they are only approximate. After the onset of the pyelitis, the patient was not weighed, but her emaciation was extreme, and it is probable that her weight fell to approximately 40 pounds (18 kg.). Although the data in regard to the nitrogen balance are rendered inaccurate on account of loss of urine by incontinence, and loss of food by vomiting, yet we feel that they justify the assumption that in all probability the negative nitrogen balance was not very large, was secondary to the infection, and was not the primary cause of the progressive failure and death.

CASE 9.—J. R., a man, aged 48, came to the clinic, April 23, 1923, having had definite symptoms of exophthalmic goiter for two years. The onset of the condition was probably one or two years earlier. The patient's normal weight was over 190 pounds (86 kg.), but at the time of examination was 137 (62 kg.). His basal metabolic rate was + 94 per cent., and he was extremely nervous. Following the administration of compound solution of iodin, his general condition rapidly improved, and the basal metabolic rate dropped to + 47 per cent. just before the ligation of the left superior thyroid artery, May 7. The postoperative reaction was slight; improvement continued, and on May 14, the right superior thyroid artery was ligated. May 18, the patient was dismissed, and advised to return in three months. At this time his condition was excellent and his basal metabolic rate had decreased to + 32 per cent. The decrease in the metabolic rate was accompanied by an increase in his efficiency as a machine, as shown by experiments with the treadmill.

CONCLUSIONS

The evidence here presented indicates that there is no measurable increase in the endogenous protein metabolism in exophthalmic goiter: therefore, it cannot be the cause of the increased basal metabolism in this disease. The cells consume at an accelerated rate whatever type of food is brought them, but in none of our experiments is there any evidence to indicate that any of the three food substances fat, carbohydrate or protein is burned in a qualitatively abnormal manner. As in the normal subject, the body's own stores of these substances are not drawn on except to meet deficiencies in food intake. However, unless the daily calory requirement is supplied by a large food intake, loss of weight and a general weakened condition with decreased resistance are more rapidly developed, and of a more intense form than that seen in normal subjects as the result of undernourishment. It is our

experience that patients with exophthalmic goiter who are losing weight are more dangerous operative risks than those who are well nourished, or gaining in weight. Therefore, measures directed toward preventing and, if possible, restoring loss of weight should be instituted before operative procedures are undertaken, if the lowest possible surgical mortality rate is to be attained.

ABSTRACT OF DISCUSSION

DR. LOVELL LANGSTROTH, San Francisco: Two very significant lessons can be drawn from the paper. First, it is important in its relation to the general subject of clinical medicine. For a long time there has been a tendency in clinical medicine to look on laboratory work, especially in the elemental sciences, as rather beneath the dignity of the clinician. Work of this type brings clearly to our minds the fact that progress in internal medicine must come from people who have the time and the type of mind that can solve this type of problem. Another significant fact is the relation of this work to the study of internal secretions. Endocrinology has been exploited widely in the last few years, and I cannot help feeling that it has been exploited by a type of clinician who is, perhaps, least suited to work out problems of this type. This paper shows the type of scientific mind that must be applied to a problem as delicate as that of the thyroid, to win any success. The same thing applies to the isolation and use of insulin, which has so lately come into prominence.

DR. J. MARION READ, San Francisco: Patients who have a high basal metabolic rate, if they are to be kept in balance, must be fed up to that rate. A patient with a basal metabolic heat output of 2,500 calories a day must receive at least 2,500 calories in diet to remain in balance. There was a time when we treated typhoid patients by starving them; and then, ten or twelve years ago, when we began to feed them, they did very much better. So also will these exophthalmic goiter patients, in fact, any patients with increased metabolic rates do better when they are fed up to their requirements. One point in Dr. Boothby's paper particularly interested me, and that was regarding the efficiency of these patients in doing work. As we all know, the efficiency of the human mechanism as a machine for doing work depends, very largely, on the integrity of the thyroid and suprarenal glands. Dr. Boothby has shown definitely that these patients with exophthalmic goiter are not efficient machines. That would seem to indicate, if one may draw inferences, that exophthalmic goiter represents a qualitative, rather than a quantitative, change in the thyroid secretions. I would interpret it, therefore, as constituting another link in that constantly growing chain of evidence that seems to lead in that direction.

DR. W. M. BOOTHBY, Rochester, Minn.: I wish to point out that in a general hospital it is particularly difficult to be certain that patients with exophthalmic goiter actually receive sufficient food. In the general hospital, the entire personnel has been imbued with the fear of overfeeding patients, and the average diet is between 1,800 and 2,200 calories. The hospital administration must be informed of the necessity of large calory diets for patients with exophthalmic goiter; otherwise, economic difficulties are apt to arise when it is discovered that certain wards are requisitioning much more food per patient than other wards.

Diphtheria in Brazil.—Diphtheria was apparently introduced in Brazil sometime in the fifties in the last century. The first real epidemic in Rio (June-October, 1874) caused thirty-two deaths. At S. Paulo, it began making its presence felt from January, 1892, being apparently imported by immigrants just arrived from Europe. These are the conclusions reached by Dr. J. de Toledo Pizá, who has made an extensive study of diphtheria as regards S. Paulo. At the Isolation Hospital, the death rate decreased from an average 12.8 per hundred admittances in the period 1910-1914 to 4.35 in 1915-1918, following the use of large doses of diphtheria antitoxin.

THE REMOVAL OF TONSILS

WITH SPECIAL REFERENCE TO METHODS OTHER THAN COMPLETE ENUCLEATION *

BURT RUSSELL SHURLY, M.D.
DETROIT

Since the writings of Celsus and a description of his finger enucleation, more than 2,000 years ago, the throat surgeon has been interested in the destruction of pathologic tonsil tissue of Waldeyer's ring. Tons of so-called literature have filled our medical journals from the earliest time, and numerous instruments and methods have been presented to our numerous societies in an effort to improve our knowledge and technic in the ever interesting tonsil problem.

In spite of years of research, the physiologic function remains a study and a choice of theories, and we have failed to stabilize and standardize our thought and method of procedure that it may prove acceptable and satisfactory to all.

The school of experience, the propaganda of education among the profession and laity, and a collective investigation of our great special societies, together with a careful inventory of results of success and failure, should give us evidence and rules that are standard guides of efficiency and are sufficient and satisfactory. We have definitely learned that certain anesthetics and methods are dangerous or failures. With a sense of responsibility, these must be thrown aside and forever relegated to the ash heap of uselessness.

A perusal of tonsil literature during the last quarter century, with its many examples of radicalism and conservatism, with its illustrations of hundreds of new, now useless, instruments, with its story of frequent imaginative results and methods without logic is, nevertheless, a tale of scientific progress. The useless procedures, to supply a demand, that promised absorption of pathologic tonsils, such as arsenical paste, iodin, electrolysis, and the galvanocautery, received a long trial, failed, and are now only memories of early laryngology. During this period there was a prevalent idea among the laity that the removal of tonsils lessened the powers of sexual function. Today we are again asked to meet and classify the value of new methods of absorption, to establish the proper therapeutic indications, and to tabulate the results from the use of radium or the roentgen ray.

While it is true that hundreds of cases are now under treatment by these methods, which, in my opinion, should have tonsil enucleation, it is only fair to meet this problem on a scientific basis and inquire and observe as to the true value and indications of the procedure. It is the duty of the laryngologist to operate on all patients that he conscientiously believes require this service. It is also his duty to classify and refer those that may obtain better and safer relief by means of the roentgen ray. We have no quarrel with the roentgen-ray expert, if he can prove a better result than ours. On this scientific study alone we must stand.

It is unfair to take advantage of the fear by the laity of anesthesia, operative procedure and the hospital to draw cases to roentgen-ray men unless a scientific statistical demonstration beyond experiment can justify the method.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

When Witherbee published his report of results in the treatment of tonsils by the roentgen ray, I immediately sent my roentgenologist to New York to learn the technic and apply the method in a series of cases and obtain, if possible, an opinion of its value.

The problem of enucleation in indicated cases must necessarily be viewed from three standpoints: the laity, the general practitioner and the pediatrician or other specialist. The laity must consent to the operation. This is often purely a psychologic problem, and depends on the successful result with a friend or a member of the family. The general practitioner may be for or against operation as influenced by fortunate or unfortunate personal experience on those among his clientele. He may have decided notions in opposition to certain methods of technic. The pediatrician demands finer details of classification as to the selection of the class of cases, age and time; he may require a special preparation of the patient. The judgment of the specialist is therefore limited in a number of referred cases, but he may be allowed to follow his own methods among those who come directly to him.

The roentgen-ray method is therefore adapted to bad operative risks and to an increasing class with pathologic tonsils who, from fear or under the instruction of some medical mind, friend or cult, will not consent to operation. The dangers, the mistakes, the fatalities and the poor results have indeed had their influence in the demand for a procedure with safety. Operation may not be performed purely as a prophylactic operation. This state of mind is somewhat of our own making. The furore for tonsillectomy, the craze to remove tonsil remnants, the poor work in the removal of adenoids by the general surgeon, and those unprepared, the constant reoperation without a more careful physical survey have discouraged many people, and these faults must be remedied.

The contraindications and choice of anesthesia demand more attention. Too many patients with active pulmonary tuberculosis are operated on under ether, and too many pulmonary abscesses, as an infection from the inspiration of septic material, develop under general anesthesia.

Tonsillectomy is a major and hospital operation. These and many other reasons have created a public demand for greater caution. So great has the furore for operation become that laymen have recommended it extensively to those who are feeling bad. It is therefore necessary to guard conscientiously the contraindications and produce a better attitude within and without the profession toward its true and wonderful value.

The selective and destructive action of the roentgen ray on cellular tissue was observed by Hemicke, in 1905. J. B. Murphy, in 1914, reported a series of animal experiments showing a disappearance of lymphoid tissue without injury to organs. The Rockefeller Institute took up the problem with the hope that irradiation would replace surgery. Its first report claimed that the size of the tonsil was reduced greatly in some cases, that the tonsil became smoother and more firm. These effects were observed to increase over a period of several months, and it was reported that the result approximated the senile tonsil. The crypts opened for better drainage, and even *Streptococcus hemolyticus* disappeared. Adenoid treatment was almost negative. These rather startling reports created great interest, and many observers have been at work. The technic of Witherbee was adopted, and cases in which irradiation was employed by Hickey, Evans and Clift, the latter of my hospital staff, have offered an opportunity for observation and continued interest.

I cannot agree with the enthusiasm of the roentgenologist. I incline, rather, to accept the reports of the series at the Massachusetts General Hospital under Barnes and McMillan. Their treatment included ten or twelve exposures each. In none of the cases did the lymphoid tissue disappear. The hypertrophied tonsils decreased to what might be called normal size. The decrease in my cases averaged about 50 per cent. A varying decrease is noted. Microscopic examination showed no atrophy of lymphoid tissue and no increase of fibrous tissue. My clinical observation after treatment showed that purulent and cheesy material could be expressed from the crypts, and infection remained on expression about the pillars. Many of my patients developed acute follicular tonsillitis directly after irradiation and some weeks later, similar to the tonsillar infection after the use of the galvanocautery in chronic intumescent rhinitis. With the contraction of the tonsil tissue we would expect greater drainage from the crypts, and this may explain any benefit; but, at present, we have no evidence that the effect is permanent or other than temporary. If acute tonsillitis is to develop after treatment, it may be that our remote danger of systemic infection may be increased.

There is no evidence to show that the infection of the crypts is removed by the roentgen ray, although a preliminary report by Hickey on diphtheria carriers proved some marked results. Unless the tonsil can be sterilized, it remains a menace to the system, and as a method to succeed surgery the roentgen ray fails. I believe that the roentgen-ray man is over enthusiastic and radical. I would take issue with Evans in his conclusions that the throat is sterilized by irradiation in all cases, or that irradiation is always the treatment for simple lymphoid hypertrophy in child and adult. It is absurd, unscientific, radical and unpardonable for Witherbee or any roentgen-ray man to state that the roentgen ray takes the place of tonsillectomy in spite of his so-called insinuated handwriting on the wall. It is fair to give each method the place that it deserves by the evidence of a study of results, and abide a time for detection of errors in scientific deductions.

Those with a type of mind who seek the wildcat oil well and gold mine pay dearly for their folly. In our profession, the expense is not so great, but the damage may be everlasting.

My experience with radium is very limited. It possesses the advantage of direct exposure to the tonsil without a wider area, although more liable to burn. Williams reports good results with 50 mg. of radium bromid. The use of these methods by experts is certainly within the zone of safety. That infected tonsils should come out must be an unvarying rule unless valid contraindications exist. The results speak for themselves. No argument or statistical study is necessary. The judgment and experience of the surgeon alone can decide this question.

There are without doubt a limited small number of cases that are bad operative risks—the bleeder; the patient with advanced pulmonary tuberculosis, cardiac disease, nephritis or diabetes; the hysterical patient with imaginative "throat trouble"; the borderline case in which the relationship to a tonsillar condition or focal infection is questionable; the neurotic, the senile and those suffering from the complex of fear. These patients should be given the trial of irradiation. They should receive much suggestive and real benefit. This

treatment as a therapeutic aid has a well defined place, and that classification should be made by the internist and laryngologist.

There are numerous questions that must be answered before radical statements are justifiable. How many treatments are best: three, six or fourteen? How long will the results last? What microscopic changes result in the different types of tonsil after treatment? What kinds of infections are modified and which destroyed? If irradiation kills all lymphocytes and lymphoblasts of the germinal layer producing atrophy, are not some reproduced?

CONCLUSIONS

After twenty-five years' experience with this work, I believe that the Sluder method for children and the tonsil knife or scissors in adults offer the best methods of enucleation. Careful inspection and reinspection for remnants in the velar lobe, at the base and along the pillars will result in fewer secondary operations.

Ether is the choice of anesthesia for children, and the reclining position on the side lessens danger.

In adults, procain, 0.5 per cent., the sitting position and dissection are most advantageous.

Tonsillectomy requires constant and careful after-observation and after-treatment to lessen infection and prevent adhesions.

Irradiation should be limited to cases that present well defined contraindications to anesthesia or tonsillectomy.

ABSTRACT OF DISCUSSION

DR. GEORGE H. KRESS, Los Angeles: Dr. Shurly's paper calls attention to a comparatively new method of tonsil eradication, which is now undergoing considerable exploitation by some of our roentgenologist colleagues. As stated by the author, the time element will be necessary before a final conclusion may be arrived at in regard to its safety and as to its effectiveness; and, as emphasized by him, careful and painstaking analyses should be made on these points by laryngologists and roentgenologists. The danger of the new method lies partly in the fact that its use will not be limited to well trained roentgenologists but that it will receive wide use and perhaps superexploitation by a host of practitioners, regulars, chiropractors and others, whom roentgen-ray instrument makers have persuaded to purchase machines, and who will find in roentgen-ray tonsil therapy a large field from which to reap commercial returns. But here also, the good and bad results will show, and will serve to collect evidence that will permit us to come to definite conclusions on the whole method. Deep ray therapy, whether with roentgen ray or radium, needs much knowledge and practice, and even those who are well trained have, at times, unfortunate end-results. If Dr. Shurly's recommendations are carried out, we should be able, in a year or so, to come to some definite and accurate conclusions as to the value and safety of this new method.

DR. E. R. LEWIS, Los Angeles: About a year and a half ago I undertook a very careful study, hoping to find that we had a useful addition to our armamentarium. That hope was not borne out, I am sorry to say. In the first place, I think it is illogical to undertake to reach the tonsil by the route that has been used by Witherbee and his followers. The procedure is based on the belief that the roentgen ray is capable of producing selective destruction of lymphoid tissue. Either that is true or it is not true. If it is not true, it is useless. If it is capable of producing selective destruction of lymphoid tissue, it is not justifiable as it is used, for this reason. The only justification that exists for the removal of any essential organ of the body is that something will take its place. In the case of the tonsil there is a series of lymph nodes in the cervical region; the most exposed is the one to succumb to infection first. If a tonsil is diseased to the point at which it is not recoverable, then its removal is justified; but it is justified only because we have back of the tonsil a second and third and fourth line of lymph nodes which can take up the function of the tonsil. The proposition is to send a ray from the fourth to the third and to the second line and ultimately reach the outpost, in the order of its destroying lymphoid tissue. This order of destruction is illogical. Other important tissues are unintentionally irradiated incidentally to irradiating the tonsils, namely, the thymus and thyroid, and later on the pituitary, a very important element in this procedure. A profound influence is produced in a hyperthyroid case by irradiating the thyroid, and yet in treatment of the tonsils the rays are sent through the thyroid and other glands, and no attention is paid to the alterations produced in those important tissues. Furthermore, it does not work. I have had occasion to see a number of cases in which cure was effected by roentgen ray, which came to operation later on. Only those who are familiar with the physiology and pathology of the situation should direct the use of any such powerful agent as the roentgen ray. I think that its use here is dangerous and unwarranted.

DR. W. S. TOMLIN, Indianapolis: I have observed some cases that have been treated with the roentgen ray, and they have not shown very satisfactory results. Most of them undergo the changes that the author has named senile changes. These senile changes are not satisfactory so far as infection is concerned; in many aged persons, systemic results from infection are found just the same as in younger persons whose tonsils are enlarged. In fact, in examining cases that show systemic infection I have been surprised at the large percentage of small tonsils that show systemic infection, when large ones did not. As to the contraindications for other methods of removal, we find them constantly revised. Many cases formerly considered as not good surgical risks later are regarded as good risks. Patients who are bedfast may have tonsils removed in bed without changing their position, so that the roentgen ray and other methods which might be thought indicated are not at all necessary. Certainly, if the infection is severe, the removal of the hypertrophy with the roentgen ray would not meet the indications at all.

DR. GEORGE MCCOY, Los Angeles: The main object of any procedure in regard to the tonsil is to get rid of the poison that the tonsil is giving off, and the way to get rid of that poison is to get rid of the germs that live in the tonsil. Any procedure that leaves a portion of the tonsil leaves a nidus for the germs.

DR. LEE COHEN, Baltimore: I wish to sound a note of warning against the use of radium in or about the tonsil for the relief of any tonsillar condition. About a year and a half ago a woman, aged 45, came to me with a beginning carcinoma at the base of the tonsil. She was in very good physical condition; the pulse was absolutely normal, and there were no signs of cachexia. This woman was subjected to irradiation under one of the most expert radiologists in our city, and after two exposures a week apart, her heart began to run away from the effect of the radium on the pneumogastric nerve, and within five weeks she had died from cardiac paralysis.

DR. CULLEN F. WELTY, San Francisco: I approve of everything Dr. Shurly said, and I would go one step farther. I think it is high time that we should insist on this because of the fact that if we begin to use the roentgen ray and radium we may do much more damage by their use than is done by operations. As to contraindications, I can scarcely see a contraindication to the removal of a tonsil that is diseased, regardless of the condition of the patient. I have had some trying cases that were seemingly hopeless to start with. If the patients are so desperately ill they will die anyway, and it would be better to take a chance by getting rid of the tonsils than to allow the patient to die of this condition. Local anesthesia should always be used.

DR. GEORGE F. KEIPER, La Fayette, Ind.: If I mistake not, it is generally agreed that the careless, repeated use of roentgen-ray applications will sterilize the patient against reproduction. On that account, we should be very chary about using any such method on growing children, and especially on girls.

DR. SANFORD BLUM, San Francisco: After so much has been said in the discussion about the best methods of destroying the tonsils, I almost hesitate to touch on one of the first points that Dr. Shurly made in his paper; namely, the function and physiology of the tonsil. To me that is of considerable importance. Henke, Lenhart and others injected various substances into the gums and nasal mucous membrane, and recovered them in the tonsils. In 1915, I published a preliminary report in which I stated my belief that the tonsil functions as an eliminative organ for the cervical glands. I based my statement on certain experiments I had done on guinea-pigs. I injected starch and various bacteria into the cervical glands, and recovered them from the tonsils. I promised at the time to continue these experiments, and I wish merely to report a little progress, namely, that I have injected charcoal into the cervical glands of human beings somewhat less than an hour prior to tonsillectomy, then obtained the tonsils after they were removed, and found the charcoal in the parenchyma of the tonsil. This would indicate at least that there is a certain flow toward the tonsil as well as from it; if, indeed, there is any away from it.

DR. M. R. BREN, Palo Alto, Calif.: I was stationed at a tuberculosis hospital in New Mexico at the time there was quite a bit of newspaper notoriety in regard to roentgen-ray treatment of the tonsils. We had a number of cases that I considered rather poor operative risks, since I hesitate to remove tonsils in active tuberculosis, especially advanced cases. Being overwhelmed with requests from patients for roentgen-ray treatment, I consented, as I desired to test its efficiency. About fifty patients were given exposures, ranging in number from eight to fifteen, and in no case was the expected or hoped for result obtained. I want to be fair and qualify my statement by saying that I did not give these treatments myself; consequently I am unaware of the technic employed, and it is possible that faulty technic was the cause of failure; at all events, there was no evidence, macroscopically, of any change in the tonsils following treatment. Many of these cases came to operation, after arrest of the lung condition, and the tonsils were removed successfully. It seems to me that one of our greatest problems as regards the tonsil especially in view of the experiments of the last speaker is to save those tonsils that are "not guilty." I believe that we should search carefully for all possible foci of infection when we cannot demonstrate to our own satisfaction that the tonsil is at fault, before we perform any unnecessary operation on the tonsil.

DR. BURT R. SHURLY, Detroit: My associate, Dr. Clift, has a record of about 200 cases that have been treated, and his work is a real contribution to the subject. I am sorry that he is not here.

Carbon Monoxid in Tobacco Smoke.—The question whether the carbon monoxid in tobacco smoke constitutes a hazard to the smoker in confined indoor spaces seems to have been settled as a result of tests just completed by the Department of the Interior at the experiment station of the Bureau of Mines at Pittsburgh. The danger is negligible. The tests were made on three men confined in a closed chamber whose dimensions were 1,000 cubic feet. They smoked for an hour and a half at cigarets of every variety. Following this, the smokers drew energetically at a variety of cigars. Finally they puffed at pipes. At the conclusion of the performance, the air of the closed chamber had become so smoky that it was impossible to see across the room. The atmosphere was so irritating to the eyes that it was necessary to wear goggles. Samples of the atmosphere and blood samples of the smokers were then taken for analysis. It was found that in no instance did the carbon monoxid content of the air exceed 0.01 per cent. The maximum blood saturation was 5 per cent. Some of the subjects supposedly inhaled their smoke, but the tests indicated that such inhalation, though it may have extended to the bronchial tubes, did not penetrate throughout the lungs. The tests indicate that carbon monoxid hazard from smoking indoors or in mines is negligible in itself.

CLINICAL PICTURE OF STREPTOCOCCIC OSTEOMYELITIS OF THE TEMPORAL BONE*

HARRY BOYD-SNEE, M.D.
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In what follows I have endeavored to present the clinical picture of a disease of the temporal bone which is to be recognized and diagnosticated as a clinical entity, and what I have to say on the subject will refer particularly to the disease as I have observed it to manifest itself in a large group of cases that I have encountered in military and civil practice. The period covers from November, 1917, to the present time.

The group comprises altogether 285 persons. The fact that the disease was found on both sides in thirty-five made it possible to explore the region and authenticate the diagnosis in 320 instances. The ages of these patients varied from 6 months to 60 years. The findings in the examinations made of the material recovered and designated preoperative, operative and postmortem have been consistently characteristic in every case, and on the anatomicopathologic and the bacteriologic findings the specific diagnosis of acute streptococcic osteomyelitis rests.

In 186 instances, accurate preoperative bacteriologic findings were established culturally from the exudate recovered from the tympanic cavity. Neglect to secure specimens of the tympanic exudate, or worthless specimens which were contaminated through faulty technic, was the case in 134; nonetheless, the operative and postmortem material recovered from the latter patients identified the disease.

In every case but one attention was first attracted to the region by the development of an acute otitis media or an acute exacerbation of a chronic otitis media. The otitides supervened in the course of the following acute infectious diseases: measles, 87; acute nasopharyngitis (streptococcic), 120; acute streptococcic bronchitis, 12; scarlatina, 20; streptococcic pneumonia, 15; influenza, 27, and epidemic parotitis, 2.

The exceptions were two. In one of these, a retroauricular subperiosteal abscess developed as a complication in a case in the empyema service. In this patient the middle ear on the affected side appeared to be normal, which fact was established by inspection and functional tests to the satisfaction of several members of the otolaryngologic staff; nevertheless, when I explored the region through an operative wound, I uncovered a thrombosed emissary-mastoid vein associated with a perisinuous abscess and a perisinusitis of the wall of the sigmoid sinus. The other was in an infant, aged 6 months, presenting bilateral involvement, the right side showing a typical acute suppurative otitis media, while on the left side the middle ear appeared to be normal even in the presence of a retroauricular subperiosteal abscess, which was found to connect with an extensive osteitis of the pars squama, this in turn covering an extradural abscess in the middle fossa.

In 160 patients, twenty-six presenting bilateral complication, I have had an opportunity to check the bone

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

findings against the preoperative middle ear findings in 186 instances. In every instance the streptococcus was recovered from the tympanic exudate before the operation, and the same organism was again recovered, either in pure culture or in culture mixed with other pyogenic organisms, from the infected cancellous bone through the operative wound. The gross pathologic changes exposed in these operations were characteristic vascular infiltration of the pneumatic and medullary spaces with granulations and exudate. The histopathologic findings in the material removed from these infiltrated areas were reported as showing round cell and leukocyte infiltration. Thrombosis of the venules was recognized in some cases in which the specimens were recovered in an early operation before suppuration and necrosis had supervened to obliterate that feature. Cultures from the different areas explored invariably showed streptococci.

Supported by these findings, I feel justified in making this statement: Recovery of the streptococcus from the tympanic exudate in the presence of an acute inflammatory reaction in the middle ear is pathognomonic of acute osteomyelitis in the bone beyond the boundaries of the middle ear tract, comprehending the medullary and pneumatic spaces in the petrous and squamous portions as well as the mastoid process of the temporal bone. If this conclusion can be accepted, and it has been established in 100 corroborative middle ear and bone findings in this particular group, then the diagnosis will carry with it everything in the way of complications as they were exhibited in the cases. Further, let me say that recovery of the streptococcus from the tympanic exudate at once excludes the diagnosis of acute otitis media, per se, with its limitations, and also the diagnosis of acute mastoiditis for the same reason, since neither diagnosis comprehends the localities in which the disease has been found to exist. On the other hand, the diagnosis of acute streptococcic osteomyelitis of the temporal bone covers the exact pathologic condition found and signifies a regional infection without limitations. Let me add that it is an anticipating diagnosis carrying with it a guarded prognosis, for it anticipates any of the complications, no matter whether regional or general, which appeared clinically in this group of cases.

The infected region in every case was reached through an operative wound, and the pathologic changes uncovered varied with the case and in bilateral operations were not identical. The variations in type will be best understood if I consider the subject in regular sequence as the different elements of the bone suffered through invasion by the streptococcus. Invasion occurred by contiguity or was hematogenous. The immediate effect on the tissues invaded was characterized by the development of an inflammatory reaction involving primarily the vascular structures of the bone. The bone marrow in the medullary spaces and the mucosal lining of the pneumatic cells were the first tissues to suffer in the reaction, and the condition was identified by characteristic vascular infiltration of the medullary and pneumatic spaces, with granulations bathed in a mucosanguineous exudate. The periosteum participated in the initial reaction in only a few instances; it was distinguished as primary in several of the cases in which otitis media developed as a complication in the course of scarlatina. The dura became primarily involved in two cases. Evidence of such involvement was disclosed at necropsy. In this discussion I shall consider periostitis and external pachymeningitis as secondary complications rather than primary manifestations of invasion of the temporal bone by streptococci.

The causal agents in this initial process appear to have been the streptococcus, as this organism was recovered in pure culture from the infected medullary spaces in every case in which the diseased region was reached before suppuration supervened, and during the period in which the inflammatory reaction was limited to the vascular structures. The infective microorganisms reached the region in two ways, namely, by direct extension from the adjacent infected middle ear tract or through the infected blood stream.

These are the pathologic and bacteriologic findings in the cases I have diagnosed acute, uncomplicated streptococcic osteomyelitis of the temporal bone.

Sooner or later the bone itself became involved secondarily, osteitis supervening, as was evidenced by disintegration of the trabeculae and erosion of the denser compact bone. With the development of osteitis, the meninges and the periosteum became secondarily involved, per extensionem. In the event of intracranial extension, the neighboring structures in the adjacent region suffered in proportion to the extent and character of the tissues invaded, and the following complications developed: external pachymeningitis, perisinuitis, thrombosinuitis, leptomeningitis, encephalitis, bulbomyelitis and encephalomyelitis. Direct intracranial extension occurred clinically in forty-eight patients, nearly 17 per cent., involvement manifesting itself as follows: perisinuitis, 22; thrombophlebitis of the sigmoid sinus, 5; thrombophlebitis of the superior petrosal sinus, 1; extradural abscess in the middle cranial fossa, 7; temporosphenoidal cerebral abscess, 7; cerebellar abscess, 1, and streptococcic leptomeningitis, 28. On the other hand, when extension developed extracranially, the complications varied according to the locality and the tissues affected, and are recorded as periostitis, dermatitis infectiosa, myositis, thrombophlebitis, lymphangitis and lymphadenitis; appearing clinically as retro-auricular subperiosteal abscess, 8; parietal abscess, 3; subtemporal abscess, 2; cervical abscess, 8; retropharyngeal abscess, 1; facial paralysis, 10; erysipelas, 18; suppurative labyrinthitis, 1, and serous labyrinthitis, 2.

The foregoing comprehends the regional complications which developed through direct extension of the inflammatory process from the primary focus of infection in the temporal bone.

Through the blood stream, remote organs and tissues suffered from metastases and from endotoxicosis and bacteremia, appearing as metastatic abscess, arthritis, neuritis, nephritis, pyelitis, pleuritis, pulmonitis, endocarditis, myocarditis, cellulitis and general or circumscribed erythematous dermatitis. These complications are proof that bacterial toxins and bacteria, as well as infective emboli from the primary focus, gained access to the lymph channels and blood vessels and entered the general circulation.

The causal agents were found to be the streptococcus in mixed strains or the streptococcus mixed with other pyogenic cocci (staphylococci and pneumococci) or bacilli (influenzae, pyocyaneus and diphtheroids).

In cases of secondary mixed infection it was not uncommon to have the specimen of the tympanic exu-

date reported as negative for the streptococcus, and the reason is that the secondary infecting organism will often submerge the primary infecting streptococcus, and the latter may remain hidden until the secondary infection has cleared in the middle ear tract, after which it may be recovered. I have seen several competent otologists misled and follow cases of this character through to what they interpreted as a complete recovery from an uncomplicated, acute, suppurative otitis media and discharge the patients as cured, only to have a recurrence of the disease manifest itself in a variable period after apparent recovery. Eleven cases of this character are included in this group.

What has been said sets forth the pathologic and bacteriologic findings in the cases of the group which I designate acute, complicated, suppurative streptococcic osteomyelitis of the temporal bone.

The clinical picture of acute, uncomplicated streptococcic osteomyelitis of the temporal bone may be said to be that of acute suppurative otitis media, and there is no variation. Objectively, the reaction in the middle ear tract, as we observe it in the tympanic cavity and the tympanic membrane, is the only manifestation, and recovery of the streptococcus from the tympanic exudate in the presence of this inflammatory reaction is the only indication of bone involvement.

The symptomatology in acute, complicated, suppurative streptococcic osteomyelitis of the temporal bone is variable and will coincide with whatever complication, single or multiple, supervenes. In these cases of mixed infection, general and local symptoms appear in regular order as extension progresses. The time when we may expect to observe external localized evidence of disease, such as sagging of the posterosuperior meatal wall, or to elicit tenderness on pressure over the mastoid or antral regions, is only after osteitis has supervened and the periosteum has become secondarily involved; likewise, symptoms indicative of meningeal irritation appear when the inner plate suffers erosion with coincident dural involvement.

The classical symptomatology of acute, suppurative mastoiditis is no guide in the diagnosis of this atypical phenomenon; there need be no sagging, no tenderness on pressure, no elevation of temperature, and no change in the structures over the mastoid; leukocytosis is a variable incident, and yet, whenever the streptococcus has been demonstrated in the course of an acute, suppurative otitis media, even if subsequently other organisms have submerged that bacterium and even if complete resolution as far as the middle ear is concerned has been established, nevertheless a focal infection still exists beyond this area in the bone marrow and in the mucosal lining of the pneumatic cells of the temporal bone.

The findings in roentgenograms were variable. They were reliable and corroborative only in the cases of the suppurative type of the disease, but were not so valuable in a diagnostic way if the plates were taken before the period characterized by suppuration and coincident bone destruction.

The termination was fatal in thirty-one, making the mortality 11 per cent. Death in twenty-nine was the result of an intracranial streptococcic suppuration in connection with the primary streptococcic osteomyelitis. Twenty-eight of these were streptococcic leptomeningitis, and one pyemia, the latter in connection with a septic thrombosis of the lateral sinus. The connection between the primary osteomyelitis and terminal complication was definitely established by necropsy findings in twenty-four instances. Two patients died of pneumonias which had no demonstrable connection with the primary osteomyelitis.

From this we perceive that 93 per cent. of the total mortality was a result of intracranial streptococcic suppuration, and 90 per cent. a result of streptococcic leptomeningitis. In eight of the cases of fatal suppurative leptomeningitis, we were able to discern that the terminal meningeal complication developed subsequent to an intercurrent brain abscess, and in five it followed septic thrombosis of the lateral sinus. In only one case in the entire group did the suppuration proceed intracranially by way of the labyrinth.

In the material utilized in this work, the streptococcus organism has been identified as a gram-positive diplococcus recovered from cultures from which the pneumococcus has been excluded by test. It has typed variously as *Streptococcus mucosus-capsulatus, Streptococcus viridans, Streptococcus pyogenes, Streptococcus hemolyticus* and *Streptococcus nonhemolyticus.*

CONCLUSIONS

1. Streptococcic osteomyelitis of the temporal bone is a clinical entity which is to be recognized and diagnosticated.
2. The etiologic factor is the streptococcus organism; it may be of any type.
3. Recovery of the streptococcus organism from the tympanic exudate in the presence of an acute inflammatory reaction in the middle ear is sufficient evidence to support the diagnosis.

ABSTRACT OF DISCUSSION

DR. HAROLD M. HAYS, New York: There are different types of mastoiditis, and frequently the pathologic picture varies, according to the type of epidemic and the virulence of the organism. Two types of mastoiditis cloud the pathologic picture: first, the very acute mastoiditis for which we must operate at an early date. There is not much breaking down of cells. In the other type there is definite destruction of all the cells in the mastoid bone, and this destruction extends down to the plate over the sigmoid sinus. In this case there is a definite osteomyelitis. In 1920, in New York, we had a severe epidemic of mastoiditis, the infecting organism in almost all instances being *Streptococcus hemolyticus.* Many of these cases developed complications. In my own practice I thought it was a unique experience and that I might have been at fault, but other men had the same trouble. Many of these patients, mostly children, had to be operated on again. It was surprising to find definite clinical pictures in many instances; for example, pain radiating over the eye; pain behind the mastoid bone, and infection of the sinuses and beyond the dural plate. When these patients were operated on again we frequently had to go forward into the zygomatic process in front of the ear, and there was no question that definite osteomyelitis of the temporal bone and beyond existed. Dr. Fraser of Edinburgh gave demonstrations in Atlantic City a month ago, showing that acute mastoiditis almost always extends beyond the point of operation, and that in attempting to remove the diseased bone we must go between the semicircular canal and parts that are far beyond the reach of instruments; in other words, that Nature must clear up some of the disease process. Frequently, cases of acute mastoiditis are apparently cured without operation. Later on, an acute condition develops, we operate, and are surprised to find a hard bone that has no cells at all. I think that this demonstrates that an osteomyelitis must have existed at some time. It is important that we should differentiate these cases. I do not think the type of the organism makes as much difference as its virulence. I maintained many years ago that frequently an osteomyelitis of the temporal bone does take place. I

should like to ask whether roentgenograms were made in these cases, and what the findings were.

DR. CULLEN F. WELTY, San Francisco: In eighteen years of practice I have not lost a single case of acute mastoid disease from any cause whatsoever. I have done about 800 operations. In an individual case of acute mastoiditis, the patient must show an improvement in temperature, pain or tenderness and leukocyte count every twenty-four hours. The most important symptom is bulging of the posterior, superior wall. When this increases under observation, and other things are going well, I have considered it an operative case. I have not done a second paracentesis for many years past. A few patients are operated on as early as the third day; 65 per cent. are operated on about the tenth day; the remainder are divided between that and the forty-second day. I have always said that every patient should be operated on, for reasons too numerous to mention here. As to pathology, I find pus in all my cases, not granulation tissue with no other finding, nor swollen mucous membrane, but pus the result of some infection. I have not had to reoperate in a single case of acute mastoiditis in the last ten years. All these are rather remarkable statements, and I am going into detail because I think it will be of benefit to every one. I have said that such things are possible and I want others to have the same confidence in bringing these cases to a successful issue that I have. It all depends on the thoroughness of the operation. By this I mean that hard bone must be exposed; or, rather, the entire mastoid cavity is to be a shell of hard bone. By hard bone I mean that a very small hook-spoked probe (I call it a searcher) is not arrested. As long as this searcher is arrested, more and more bone will be removed. Many times the eye will not discover the places offering resistance to the probe, and sometimes this leads to an abscess cavity or another cell that contains pus, and sometimes to an extradural abscess with extensive destruction of the sinus wall. I believe so thoroughly in all these different procedures that it would be difficult to convince me to the contrary. Furthermore, I believe that these very careful and painstaking procedures make for success, regardless of the kind of infection.

DR. CHARLES W. RICHARDSON, Washington, D. C.: I have from earlier days been interested in osteomyelitis of the flat bones. Unless we consider that there are many types of infection due to various types of bacteria in the temporal bone, we must accept the dictum of Dr. Boyd-Snee. I believe there are different types. I believe that there is a true osteomyelitis of the temporal bone which is different from other types of infection of this bone. I beg to differ also from the statement that there is no clinical manifestation of elevated temperature. I think we have in these cases (all those that I have seen and diagnosed as this condition) a very decided temperature wave. In fact, in every case in which there was a decided temperature wave, there was this osteomyelitis or infection of the sigmoid sinus. In the operation after we have cleaned out all the diseased area, apparently, if we wait a few moments and watch the wound, we shall see here and there over the surface little points of pus come out of the diploe. This pus is coming out of the haversian canals or from minute pneumatic spaces. This condition comes more frequently in the diploic than in the pneumatic cell mastoids. In operating, it will be necessary to follow the diseased area until we get to clean bone. The micro-organism usually found is the streptococcus. This condition must be followed to its termination in the diseased bone, and unless we proceed to a definite end in this operation we shall fail. This is what I would describe as osteomyelitis of the flat bone, similar to osteomyelitis as it occurs in long bones.

DR. HENRY G. MUNDT, Chicago: I agree with everything Dr. Boyd-Snee said relative to the streptococcus, and if we are willing to assume that the streptococcus does produce an osteomyelitis in 100 per cent. of cases, then one needs to wait no longer than to find the streptococcus in the tympanum for an indication for operation. The material presented has been gone over carefully enough to afford a basis for some conclusions. I do not think that the author said that a patient may not have a high temperature. My interpretation of his paper is that the finding of the streptococcus in the middle ear, barring all other indications, is an indication for operation on the temporal bone. I believe that in almost all cases the streptococcus does produce osteomyelitis. If we find a pure culture of streptococcus in the middle ear we have an involvement of the temporal bone; and if that involvement is going to supervene, we need wait for nothing more—no tenderness, no swelling. If we do wait, the classical symptoms of involvement of the mastoid and other portions of the temporal bone will be manifested.

DR. JOHN W. CARMACK, Indianapolis: I have had somewhat the same experience as Dr. Boyd-Snee. It seems to me that in a surgical mastoid involvement such as osteomyelitis of the temporal bone, the difference in virulence of the organism is the dominant feature. In the fall of 1918, we had what was termed by some a mastoiditis epidemic. There was a great increase in the number of hemolytic streptococcus cases in the army camps, and this was in a camp far removed from that of Dr. Boyd-Snee. Each year since then, in the winter, in Indiana, we have had a recurrence of the hemolytic type of streptococcus cases. We know that in the nonhemolytic type, in the pneumococcus and in the staphylococcic type of infection, immunity results, a natural building up and elimination of that infection. In the hemolytic type of infection, such as we had in 1918 and have had sporadically each year since, Nature does not produce a natural immunity either in the body as a whole or in the local mastoid area to any considerable degree. In the past, the nonhemolytic type of infection has been permitted to form a line of demarcation, and we can let that patient go a week or ten days without serious trouble at all. The other type, in which there is neither a walling-off nor production of immunity, we cannot wait. The early evidence of osteomyelitis in the temporal bone, or even the finding of *Streptococcus hemolyticus* in the exudate from the area, is sufficient to warrant intervention. That is the type that we must take into account and operate in early if we hope to get results. The next biggest thing, after getting rid of all the infected tissue, is leaving that wound open. *Streptococcus hemolyticus* is active when it is confined, either in the mastoid or in the antrum. When we get free drainage from the area, free aeration, then the mastoid wound may be left open. Leaving the wound wide open, with free drainage, is the biggest factor in preventing extension.

DR. PHILIP C. MEANS, Santa Barbara, Calif.: Many of us feel that we have seen streptococcic infections of the mastoid area that have not quite had this picture. I should like to emphasize the point made by Dr. Hays, that there may be a type of infection that has a selective action. Rosenow found that certain strains show certain action and do so always. He has done some work on dogs, taking the infection from a tooth of a man with kidney stone and putting it into a devitalized tooth of a healthy dog, and in every case stone formed in the kidneys. It seems to me that maybe this shows that it possibly was a type of streptococcus with a selective action, and Dr. Boyd-Snee got results that we do not always see.

DR. H. V. DUTROW, Dayton, Ohio: In listening to this paper and the discussion, it seems to me that one might get the impression that every case in which we find streptococci in the external auditory canal is a case for radical surgical treatment. Nothing can be farther from the truth. All of us see many cases of streptococcic middle ear infection that have no symptoms whatever of mastoiditis or involvement of the temporal bone. We should follow the infected area as far as it goes. All of us have had cases from time to time in which the infection extended into the zygomatic process far forward in front of the ear and posteriorly toward the occipital protuberance. I simply wish to stress this point: that not every case of streptococcic infection of the middle ear is a case for radical surgical treatment. One should be governed in all cases by the classical signs and symptoms of acute mastoiditis.

DR. HARRY BOYD-SNEE, South Bend, Ind.: Answering Dr. Hay's question, the roentgenograms were of value only in the cases in which the disease had advanced to the point of suppuration which was characterized by bone destruction. In the early stages when there was vascular infiltration or uncomplicated streptococcic osteomyelitis, the roentgenograms were of no value. If I could have gone farther in my reading, far enough to point out the mortality and necropsy findings, I could have thrown more light on the subject. Thirty-one

patients died. Twenty-nine of these deaths were the result of intracranial streptococcic suppuration. Twenty-eight cases terminated in a fatal streptococcic leptomeningitis. One patient died of a general pyemia in connection with septic thrombosis of the lateral sinus. Two patients died of pneumonia; in neither was there any demonstrable connection with the primary osteomyelitis, as both cases developed in an epidemic, three and six weeks, respectively, subsequent to operation. I have recovered the streptococcus from the middle ear exudate; I have later found the streptococcus intracranially in various suppurations. I have attempted from postmortem observations to trace back those intracranial complications, and in every instance I have been led directly to a primary osteomyelitis in the temporal bone. I have recovered and identified the same organism intracranially that I recovered from the tympanic exudate. My purpose in presenting this paper is to call attention to the significance of the streptococcus organism in the tympanic exudate. My findings are concerned with material recovered at necropsies and at operations, as well as the tympanic exudate.

POST-TRAUMATIC BONE TUMORS *

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The actual part that trauma plays as a causative factor in any human disease would be an interesting matter of research. Any solution of continuity of tissue invariably brings to that place the condition of lowered resistance, if it does not actually become the place of least resistance.

There has been a general supposition that repeated slight trauma is the cause of carcinoma, while it is one severe blow that causes sarcoma. Such reasoning must be based on the coincidences that have happened in many cases, rather than any scientific research. We do know that these malignancies are post-traumatic. That is all we know of the bone tumor to be reported in this paper.

The intelligent roentgen-ray readings have been the most wonderful addition to the diagnostic armamentarium. These, with the minute history of the relation of the tumor to the haversian system, as well as whether or not it is medullary or cortical, usually enable us to classify any tumor properly. However, the final step is the examination of some tissue under the microscope. Even with this, there is often a great diversity of opinion among pathologists.

This accounts for so many reported cures of bone sarcoma, although final cures in sarcoma are not over 4 per cent. For these reasons, Dr. Bloodgood, in Cleveland, said that he had seen and operated on a local patient some time before, but that he was not now sure that it was sarcoma.

From the histologic make-up, all primary tumors of bone are of the connective tissue type or group; but the secondary tumors may be of the epithelial type.

He thinks that, if the age is under 15 and the growth is central, it is not sarcoma. Again, multiple periosteal lesions are benign, primarily, at least. Diagnosis must have the aid of palpation, with the roentgen ray, including the opposite corresponding bone. In the roentgenogram at the joint, if more than one bone is involved, the condition is infectious rather than malignant. The most common central bone lesion is a benign bone cyst. Next is the giant cell tumor, long since proved to be benign, which predominates in persons over 15. Myxoma may occur at any age, and is the most difficult to cure without amputation.

Under the question of bone tumor following trauma, Bissell reports six cases in detail, in each of which sarcoma developed at the site of fractures. At the time of fracture, all the patients were young, vigorous and healthy with one exception, a woman of 50. In every case but one, the lesion was in a long bone. The original injury was slight, suggesting some underlying constitutional condition. However, a malignancy is not a common sequel to bone injury. It is not the force of the injury or the gravity of the accident that produces the sarcoma.

To Bland-Sutton,[1] the relation of injury to sarcoma is a matter of some importance. He quotes cases familiar to all, wherein persons have received injuries to bones; and, often within a few days, a tumor appears, which is then or soon becomes sarcomatous. He says that every pathologic museum of any note contains specimens of sarcoma growing in the bones of the head and limbs as a sequel to a severe single injury. The majority of surgeons believe that a single intensive injury may occasionally induce the growth of a sarcomatous tumor; but there is a wide diversity of opinion as to the exact conditions under which any given case of tumor is to be regarded as of traumatic origin. All agree that the situation of the tumor must correspond to the site of injury; but there is no definite agreement among surgeons as to how long an interval may elapse between the injury and the appearance of the tumor.

The most puzzling cases for the histopathologist are those in which there is an exuberant formation of reparative tissue around a fracture. Often this forms a sarcoma-like mass, which microscopically is indistinguishable from sarcomatous tissue. This condition has been described by Shattuck with great skill and acumen. Pollard also has described a remarkable case. One of the most extraordinary examples is a tumor which slowly formed within the shaft of the tibia after a fracture, and grew for ten years. The leg was amputated by Eve, who described the tumor as a slowly growing spindle-cell sarcoma.

Periosteal sarcomas spread through the periosteum, infiltrate the muscles, and invade the veins. When the overlying skin is involved, the lymphatics are infected with the disease. It is for these reasons that surgeons amputate the limb in such a manner that, whenever possible, they remove the whole of the affected bone.

The results of amputation for sarcoma are depressing. The contradictory results of such operations of opposite methods of treatment can be explained only on the ground that sarcomas of apparently identical microscopic structure vary greatly in malignancy.

Cohn [2] reports a case in which a patient fell on his outstretched hand. First treatment was for a sprain. Nine months later he had great disability of the forearm. A roentgenogram showed a bony tumor between the radius and the ulna. Extirpation revealed the tumor attached only to the ulna. It was a fungous growth, probably the result of an injury to the interosseous ligament, tearing it from the ulna, together with a splinter of bone. It is his hypothesis that a bony tumor came from the detached nucleus. It is certain, however, that a benign tumor, involving no fracture, followed an injury of indirect nature. The tumor contained centers of softening, and consisted chiefly of osseous and cartilaginous tissue.

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* Read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Bland-Sutton: Tumors Innocent and Malignant.
2. Cohn: Traumatic Bone Tumors

Rocher,[3] describing his army experience, stated that "contusions, abrasions or furrows following tangential wounds of the bone by balls or fragments of shell sometimes develop bony tumors. The new growth is formed either under traumatism alone, or of traumatism followed by infection." He observed nine such cases: In four of them, the periosteoma formed under aseptic conditions; in five, the traumatic focus suppurated long and abundantly. "In the infectious periosteoma, the bony tumor develops insidiously under the picture of diffuse swelling of the tissues, and can be palpated easily as soon as the infectious phenomena subside. The stylet encounters denuded bone. Or the mass may be too deep for palpation, and can be found only by the roentgen ray. It may be in the form of a triangular spear or sometimes that of a pedunculated cauliflower. Traumatism with irritation of the osteogenic bed seems indisputable in these cases. It was possible in one case to speculate on the transformation of a traumatic myositic focus by reason of the form of the bony growth and its relation to the deltoid muscle." In one case, the roentgen ray showed a bony bridge across the inner pelvis following the track of the projectile. One patient had total sciatic paralysis from an osteoma within that nerve. Another had a genuine bone plate ensheathing three fifths of the surface of that nerve, the bony plate being in the shape of a tile. One of the tumors was in the deltoid region, one on the shaft of the humerus, one on the radius, one on the iliac crest, and three were on the larger trochanter and one on the lesser.

In his research on osteoma of the anterior brachialis, Bardon saw a woman, aged 26, who had a myosteoma in the insertion fibers of the anterior brachialis. It was found and removed four months after luxation of the elbow. It was the size of a nut and of bony consistency. One year later it gave no signs of recurrence. Destot and M. Billet show the condition of malignancy in rare cases. Helgeinreiner reports two cases of traumatic osteoma. One of the patients had been kicked by a horse ten months previously. The result was a tumor 17 cm. long, extending toward the knee and into the extensor muscles. It was osseous, tongue-shaped and "feathering." The other one came from a shot three months before. Its progress could be followed clinically and by the roentgen ray. It was the size of a fist, with the roentgenogram showing bone in the central portions.

Schmidt, in describing a peculiar growth following a gunshot wound, describes a case in which the thigh was injured. This growth extended almost at right angles from the middle of the femur to the wound of exit. Connective tissue united the two wounds. The splinter was covered with periosteum and enveloped in connective tissue. The cross-section was oval and showed a number of nutrient foramina. The growth was probably from a tangential wound of the femur with the detachment of a bit of periosteum, which propagated in the line of least resistance. The blind hollow at the free end appears to represent the beginning of a medullary cavity.

Morgan and McGill, in discussing spurlike formations of bone following amputations, have made interesting notations. In discussing the frequency of bony spurs in amputation stumps, especially in war work, they say: "Most observers, such as Binnie, Hirsch, Bunge, Mauclair, Kocher and Farebeuf, consider these spurs the results of bone formation, caused by irritation of the periosteum, particularly with long continued sepsis." In connection with the occurrence of spurs following the osteoplastic or the subperiosteal methods of operation, they continue: "An interesting comparison may be made between these spurs and the so-called exostoses, which form as a result of injury to the periosteum from a blow, or when a bone is fractured."

3. Rocher: Nine Cases of Traumatic Ostoma.

REPORT OF CASE

J. R. B., a man, aged 30, a painter and paper hanger, whose family history was negative as to tuberculosis, syphilis and tumors, either benign or malignant, had his foot crushed, Feb. 23, 1920, but the roentgen ray revealed no fractures. November 29, I performed the operation for right femoral hernia, of which there had been no sign of recurrence. March 20, 1922, he came to my office with a deep abscess in the lower third of the left arm. There was a history of injury to that region, Feb. 22, 1922, as he reached around the eaves while painting a building. I incised this abscess under local anesthesia, but two days later I was compelled to make the incision down to the bone in order to get proper drainage. This was dressed with balsam of Peru, and gradually the incision closed. He kept at work under ordinary home care. I heard nothing more from him until he came to my office, May 24, with a hard bony tumor at the site of the former incision. This was three months after the time that I opened the abscess, and practically four months after the original injury.

This tumor was of bony hardness; the surface was irregular; it was not attached to the skin except at the line of the old incision, but it was firmly attached to the bone. The roentgen ray showed a bony tumor attached to the left humerus at its lower third. The attachment to the bone was small in comparison to the size of the tumor, and it seemed to be in the shape of a neck or constriction. Bence-Jones bodies were reported once, but were never found before or since, so I think we may rule them out.

The patient was presented to the bone tumor clinic at Cleveland, May 13. Dr. Bloodgood said that in his thirty-five years' work on bone tumors, he had never seen such a case with that history. The probable diagnosis was periosteal osteoma. He said that though not malignant, it was extremely liable to recur.

June 19, I removed the tumor after first endeavoring to push aside the periosteum. The tumor at its base was extremely hard, the bone forceps only with great difficulty snipping it. The area from which the tumor had been removed was thoroughly burned with the actual cautery. Horsley's wax was applied, and then the periosteum was sutured over it. Over this the muscles were approximated, and the skin was closed without a drain.

The man was soon back at work, and so far has had little inconvenience or pain.

SUMMARY AND CONCLUSIONS

There has been a general belief among medical men that there is a very definite relation between trauma and bone tumors.

As far as I have searched the literature, there is no experimental proof that injury has caused bone tumors.

Some writers think there is an underlying constitutional factor, which with the trauma, causes bone tumors.

During the war work many cases of bone tumors were reported, following injury, either with or without infection; but most of these war wounds were infected from the onset.

The greatest task in this study is in the line of diagnosis.

In view of the high mortality of sarcoma, especially as to its final results, it would seem advisable to take some extra time to make sure of the diagnosis. It would be better to save a limb in a benign case, even

with the slight added danger from the time taken to make this diagnosis as complete as possible.

The Colton.

ABSTRACT OF DISCUSSION

DR. J. F. PERCY, Los Angeles: Bone, especially the jaw, should not be touched with a cold saw, chisel or drill until the malignancy has first been destroyed with a red hot cautery. This is especially true of the removal of teeth. These should, before their removal, be made hot in order to destroy the surrounding malignant cells with the accompanying pus organisms. A very practical way of doing this is to play an oxyacetylene flame on the bones or teeth that are to be sterilized with the apparatus used by jewelers to weld metals. This method avoids the dissemination of the cancer cells in bone in the same way that the cautery knife prevents the scattering of infections, malignant or otherwise, in the soft tissues.

DR. J. C. BLOODGOOD, Baltimore: Dr. Foster's case is unusual, because the bone formation in the arm followed the incision of an abscess in which the shaft of the humerus was cut with the knife. The differential diagnosis between benign ossifying periostitis and ossifying sarcoma is a very difficult one. I have discussed this in detail in the *Journal of Radiology* for February, 1923. Dr. Foster's discussion of post-traumatic bone tumors is important in relation to accident insurance and workmen's compensation. The evidence seems to establish that both benign and malignant lesions of bone may follow trauma. Dr. Morton's cases are clearly described, and if we wish to make progress in the earlier and more accurate diagnosis of diseases of bone, we need in the literature more communications of this type.

DR. S. D. FOSTER, Toledo, Ohio: I want to clear one point about the conclusions I stated. I said that the whole story was to be worked out with the making of a diagnosis from the roentgenogram and from the history, if possible, to prevent the loss of the limb in a benign tumor, and that was what we were working on in this one case.

MINERS' SILICOSIS: ITS PATHOLOGY, SYMPTOMATOLOGY AND PREVENTION *

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Dust as a causative agent in the production of lung diseases has been known by writers of medicine from early times. Ramazzini, that pioneer observer of diseases of artificers, published in 1700 a treatise on the effect of dust inhalation. Stratton, in 1838, proposed the name of anthracosis to designate the condition found in coal miners as a result of inhaling coal dust, the term silicosis being applied to miners' consumption produced by quartz, flint and other silicon dusts. Probably the application of the term pneumonoconiosis, as proposed by Zenker in 1867, should be the proper nomenclature in occupational medicine for all inorganic and organic dusts that produce lung disease among workers.

The experimental work and observations of Haldane [1] and of Mavrogordato [2] particularly revealed a new aspect of the problem as to how pneumonoconiosis is developed, and in view of the recent investigations of the fundamental changes arising from dust inhalation, these findings should be more generally recognized. They noted, in the case of coal miners, that the carbon particles inhaled produced a violent reaction when brought in contact with the bronchial alveoli, which stimulated phagocytosis, taking up the dust particles in the endeavor to eliminate them. Other dusts, however, and among them crystalline silica, and quartz dust especially, when inhaled, produce a milder reaction and are less readily phagocytosed, a condition which prevents their autolysis and causes an accumulation in the lymph channels with the resulting fibrotic changes. It is for this reason that anthracosis, from both a morbidity and mortality standpoint, is not as hazardous as silicosis.

The amorphous forms of silicates seem to be innocuous through lack of possessing the physical or chemical qualities of crystalline silica, which is the harmful and damaging agent in the lung. It is the latter form, as Haldane has pointed out, which is clinically recognized as not being readily eliminated, and which, owing to its nonabsorptive character, is less possible of being phagocytized.

Fenn [3] prepared suspensions of carbon and quartz and showed that the polymorphonuclear leukocytes of the rat ingested carbon four times as readily as they did quartz. Drinker's [4] explanation as to the manner in which dust invasion is routed during inspiration is interesting. The natural tendency of the tissues is to consider dust as a foreign body, whereby a process of elimination is effected. The wandering phagocytes in the alveoli act as scavengers, and, by their ameboid movement, carry these particles up the bronchioles with the aid of the ciliated epithelium and are expectorated in coughing; the greatest menace to this process being the phagocytes, which, in the case of silica, prevent their autolysis or digestion in the lymph, thus causing their accumulation in the lymph channels, which they eventually fill up and block. Behaving as foreign bodies in the lymphatics, they cause fibrotic changes to occur, in which the cells themselves emerge into fixed connective tissue cells and ultimately into coarse, white fibers, thus completely and perhaps permanently obstructing the lymph channel. The lung roots, the gland, and even the blood vessels are converted into a solid rod of fibrous tissues.

Gye and Kettle,[5] from experimental evidence, have shown that silica is conspicuous and alone capable of inducing fibrosis because of its chemical action, and not in virtue of its physical properties; and they reason that silicotic fibrosis aids in the establishment of tuberculosis by destroying the natural immunity as a result of the destructive action of the cells by the silica. A focus of necrosis is produced in which the tubercle bacilli can multiply.

Lanza [6] noted, among the zinc miners in southwestern Missouri, that pulmonary changes are usually manifested only after about four or five years, while the observations made by investigators in the quartz mines of the Pacific coast show that evidence of silicosis can be detected in the workers in from six to eighteen months. Ordinarily, the progress of the disease is slow; but when induration of the pulmonary structures is established, it tends to advance more rapidly.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Haldane: Effects of Dust Inhalation, Engineering & Mining J., 1918.

2. Mavrogordato, A.: Experiments on Effects of Dust Inhalation, J. Hyg. 17: 439 (Oct.) 1918.

3. Fenn, W. O.: Phagocytosis of Solid Particles, J. Gen. Physiol. 3: 465 (March) 1921.

4. Drinker, C. K.: Modern Views upon Development of Lung Fibrosis, J. Indust. Hyg. 3: 295 (Feb.) 1922.

5. Gye, W. E., and Kettle, E. H.: Pathology of Miners' Phthisis, Lancet 2: 855 (Oct. 21) 1922.

6. Higgins, Lanza, Laney and Rice: Siliceous Dust in Relation to Pulmonary Disease Among Miners in Joplin, Missouri.

SYMPTOMATOLOGY

In the incipient, or first, stage, the chest expansion is usually about 2½ inches. The worker becomes anemic, loses weight, and has dyspnea and cough. These are the principal symptoms. The physical evidences adduced by percussion are negative in the early stage, although auscultation may reveal a few râles in the bronchial tract, the apexes usually being clear. A characteristic symptom is the bluish green sputum, which, in the majority of cases, is negative for tubercle bacilli, and which, if found present, is due to a reactivation from a former infection.

The physical findings frequently are negative during this stage when fibrosis has actively begun. The most valuable instrument in diagnosis during this period is the roentgen ray, which in experienced hands can detect densities which should be interpreted as early deposits of dust. These variations in density increase as the different stages progress, until pronounced mottling at the hilum and the involvement of the glands with the contraction due to fibrosis can be definitely filmed, as observed in the advanced cases.

During the second stage, as the pulmonary involvement advances, there is a feeling of tightness and constriction of the chest. The expansion is limited to about 1 inch. Dyspnea becomes more marked and is ascribed to the loss of pulmonary elasticity and consequent diminished chest expansion. The cough is more severe; the expectorations are greater in amount, and at times streaked with blood. Naturally, the patient is easily fatigued and has loss of appetite and loss of weight. Elevation of temperature is slight, the patient frequently being afebrile. The roentgenologic examination reveals a more extensive mottling throughout the lung; invariably a greater distribution is noted in the right lung.

In the third stage, the symptoms are more aggravated and are characterized by very marked dyspnea and profuse expectoration after coughing, frequently with hemorrhages. Inspection reveals the chest expansion to be negligible, the interspaces increased and the apexes retracted. A noticeable pathognomonic condition observed in one third of all the cases is the adherence of the right diaphragm, due to the presence of adhesions, thereby lessening the functional capacity and causing a pronounced dyspnea. This was also observed by Landis.[7] Dulness on percussion is more marked on account of the extensive fibrosis, especially over the midportion of the lungs. Sibilant and sonorous râles are found on auscultation, as in cases of bronchial asthma. Digestive disturbances, such as vomiting in the morning, probably due to coughing, are experienced. These patients cannot tolerate coffee for some reason and usually dispense with breakfast. The loss of weight is pronounced. Fatigue and anemia become greater as the disease advances. Fluoroscopic examinations show fibrotic changes resulting in greater density, and the lung retracted as a result of the contracted bands, especially at the diaphragm.

In one of my cases, that of a miner engaged at the mother lode in California, the patient was in the first stage, but markedly anemic, which raises an interesting question as to this manifestation: In the first place, all persons working in the dark and not coming in contact with sunlight have a peculiar pallor; and secondly, as in the case of this patient who had the disease also, one must be suspicious of hookworm disease, which is quite common in California quartz mines. A stool examination is necessarily important so as to rule out uncinariasis.

From a public health standpoint, microscopic examinations of the sputum should be conducted regularly, so as to differentiate miners' silicosis from pthisis; especially is this precaution necessary to prevent tuberculosis in children in the homes of suffering miners.

Prevention is the only measure that offers a solution in this disease. This applies to the worker who is already a sufferer and to the environment in which the miner labors. The sufferer can never be cured of his fibrosis by any therapeutic methods. His only salvation is to change his vocation to a less laborious outdoor job, free from dust, with a view of preserving what normal lung tissue there is left. Such symptoms and defects as are present should be relieved by hygienic and general measures. Medical supervision by trained medical experts is absolutely essential, with periodic and complete physical and roentgen-ray chest examinations.

As to environment, which, in the last analysis, is the actual cause of silicosis, two methods of prevention are applicable: mechanical exhaust ventilation and the wet process. The latter method, that of wet stopers or drills, which are constantly injected with water, has greatly reduced the dust content in the air breathed by miners. It has been definitely proved by observers in the California quartz mines that the underground atmosphere contains about 50 per cent. more moisture than the mines in the sister state of Nevada, where the incidence of miners' silicosis is greater, and where a very large percentage of the miners have evidence of the disease—a convincing proof of the potency of moisture in reducing dust content in mines. A full hour for dinner and recreation above ground in the fresh air and sunshine will mitigate the incidence of the disease. During this period, blasting, sprinkling and the mechanical exhaust coil make a safer place for the worker to return to. And lastly, better housing, company cafeterias, public health nursing, medical supervision and education of the workers as to the dangers of silicosis dust inhalations will work wonders toward the control and abolition of this deadly disease.

7. Landis, H. R. M.: The Pathology and Clinical Manifestations Following the Inhalation of Dust, J. Indust. Hyg. 1: 117 (July) 1919.

New Method to Protect Engine Crews in Tunnels.—The Bureau of Mines and the Union Pacific Railroad conducted an investigation to determine the cause of gassing accidents while passing through railroad tunnels. On forty trips conducted in cabs of locomotives passing through tunnels, carbon monoxid was found present on thirty-four. The operation of twenty-four trains in a normal running time of six minutes through the Aspen tunnel, Wyoming, showed cab temperatures of 114, and a relative humidity of 90 per cent. The maximum dry-bulb temperature recorded 136 F. Physiologic tests showed that the conditions in the cabs might cause asphyxiation or exhaustion in twenty minutes, as might be the case when the engine is stalled. Using the exhaust in conjunction with a hood attached to the top of the locomotive stack, to throw the smoke back over the top of the cab, was very effective in reducing the temperature and improving the atmospheric conditions. The most satisfactory method found for improving the atmosphere found in tunnels was by supplying air through respirators attached to the train air-brake pipe line. During the passage of the locomotive through the tunnel, the wearer held the funnel to his face, and breathed fresh air thus supplied from the train pipe.

FOUR DEATHS CAUSED BY SODIUM FLUORID *

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The literature contains very little regarding poisoning by sodium fluorid, and most textbooks on toxicology have failed to record deaths by this poisoning.

Sodium fluorid (NaF), a white powder crystallizing in colorless cubes, with a specific gravity of 2.766, which, on heating, melt at about 900 C., volatilizing slightly at a lower temperature, of an acrid bitter taste, is soluble 1 part in 25 parts of water.[1] It is a general protoplasmic poison having a strong local irritant action. It exerts an alkaloid-like action, in addition to the changes in the tissues wrought by the loss of calcium, similar to that of oxalic acid poisoning. In the lower organisms not requiring lime, oxalic acid, in contrast with the fluorids, does not exert this alkaloid-like action.[2] One part of the salt in 200 parts of water, or one part in 500 of a fermentable liquid such as a sour mash of distilleries, stops the growth of bacteria. Tappeiner[3] believes the local and antiseptic action due to change of salts to hydrofluoric acid. It has an inhibiting action on lipase.[4]

When fluorids are given in small amounts, they are absorbed and deposited for the most part in the bones. The bones become unusually hard, white and brittle, and small white crystals have been noted, probably calcium fluorid.[5] Crystals have also been deposited in the liver in sodium silicofluorid poisoning.[6] A loss of chlorin and calcium in the bones followed the intramuscular injection in animals of from 1 to 2 mg. per kilogram of weight.[7] Schultz[8] found that subcutaneous injections of sodium fluorid acted on the central nervous system. A paralysis of the brain and spinal cord was noted. The end of its action was a muscular paralysis, and in cold blooded animals, extreme stiffness or numbness of the muscle, profuse flow of saliva, and a hemorrhage of the gastric mucosa. Sodium fluorid, from 15 to 150 mg. per kilogram of weight, eaten with food for a long period of time results in progressive impairment of growth and food consumption.[9] The addition of solutions of sodium fluorid to methemoglobin forms fluormethemoglobin, which is a little more red than methemoglobin, having a characteristic absorption spectrum in the orange, and a second one in the blue which is more difficult to see.[10]

A small amount of fluorid is normally found in the bones and teeth.[11] The bones and teeth of dogs do not contain more than 0.3 per cent. of fluorin. The fluorin content was raised to 1.73 per cent in bones and 1.29 per cent. in teeth, in feeding dogs sodium fluorid.[12] The diaphyses of fresh bone contain four times as much as the epiphyses.[13] Dry flat bones are poorer in fluorid than the diaphyses of long bones. Fluorid is a constant constituent of food,[14] the amount ranging from 0.059 to 13.87 mg. in 100 gm. of the dried material. Fluorid is most abundant in the leaves. The skins of the banana and apple contain more than ten times as much as the pulp. Traces of fluorids are found in potable waters.[15] Small quantities are found in the epidermis, hair,[16] thymis, testis, blood, milk and in all the organs. Gautier[17] found from 0.57 to 8.0 mg. per hundred grams of dried tissue. Those of low vitality contain the most fluorin.

Fluorin exists in two chief forms; in the most important tissues it is combined with phosphorus in a nitrogenous organic substance, and in the epidermal tissues in an inorganic combination with phosphorus resembling apatite.[18] Zdarek[18] determined fluorin gravimetrically as calcium fluorid in the ash of the organs of two healthy men accidentally killed, the kidney, liver and spleen containing the greatest amounts. The kidney contained 1.34 and 1.54 mg., the spleen 0.82 and 2.35 mg., and the liver 0.68 and 0.80 mg., respectively, per hundred grams of dried tissue. The fresh blood of one patient contained 0.21 mg. in 100 gm. Sodium fluorid is used as a wood preservative;[19] with sulphuric acid in the etching of glass; as a food preservative,[20] and as an insecticide. The amount of sodium fluorid varies from 16 to 63.6 per cent. in roach powders. It is in the latter connection that we are chiefly interested from a toxicologic standpoint. Hydrofluoric acid has been responsible for a few deaths and many serious cases of poisoning.[21] Sodium fluorid has not been regarded as a poison, but it is time that manufacturers and dispensers of insecticides label their products "Poison," and inform the public that the insecticides contain certain substances capable of causing death or seriously affecting the health of the individual when it is taken by mistake for a baking powder or a laxative.

Stanton and Kahn[22] report an instance of the poisoning of a child, aged 19 months, with a roach powder containing from 40 to 50 per cent. sodium fluorid. The child recovered on the eighth day. Vallée[23] records the poisoning of a family of five from eating pastry containing sodium fluorid. Each cake contained 0.228 gm. of sodium fluorid. One member of the family ate two cakes, containing, in all, 0.456 gm. of sodium fluorid. All recovered. Schyzzer[24] reports that a man, aged 38, was poisoned by consuming large quantities of beer containing sodium fluorid. Fluorid was found in the urine and the blood. Hickey[25] records the death of a girl, aged 10 years, who was given one teaspoonful of sodium fluorid by mistake for potassium and sodium tartrate (Rochelle salt), and died in one hour. Two other people, a man and wife between 50 and 60 years of age, who took 2 teaspoonfuls of

* From the Department of Materia Medica and Toxicology, Rush Medical College.

1. One hundred parts saturated solution contains 4.3 gm. of NaF at 18 C. (Myleius and Funk, Ber. d. deutsch. chem. Gesellsch. **30**: 1718, 1897).
2. Loew: Allg. bot. Ztg. **94**: 330, 1905.
3. Tappeiner: Arch. f. exper. Path. u. Pharmakol. **26**: 108, 1890.
4. Amberg and Lovenhart: J. Biol. Chem. **4**: 149, 1908.
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6. Carlau: Ein Beitrag zur Kenntnis der Leber veränderungen durch Gifte, Diss., Rostock, 1903.
7. Schwyzer, F.: Biochem. Ztschr. **60**: 32, 1914.
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9. Schettler, Wetzel and Solliman: J. Pharm. **17**: 225, 1921.
10. Kobert: Kompendium der Toxicologie, Ed. 5, 1912, p. 205.
11. Gabriel: Ztschr. f. physiol. chem. **18**: 261, 1894. Harms: Ztschr. f. Biol. **38**: 487, 1899. Jodlbauer: Ibid. **41**: 487, 1901; **44**: 259, 1902.
12. Sonntag, G.: Arb. a. d. kais. Gesellsch. **50**: 307, 1916; Chem. Zentralbl. **1**: 1095, 1916.
13. Gautier and Clausman: Compt. rend. Acad. d. sc. **156**: 1425, 1913.
14. Gautier and Clausman: Comp. rend. Acad. d. sc. **162**: 105, 1916.
15. Charles: Rev. chim. applicado **4**: 181, 1919. Gautier and Clausman: Comp. rend. Acad. d. sc. **158**: 1389, 1631, 1914.
16. Kickton and Belinke: Ztschr. f. nahr. Genüss. **20**: 193, 1910.
17. Gautier: Compt. rend. Soc. de biol. **76**: 107, 1914; Compt. rend. Acad. d. sc. **156**: 1425, 1913.
18. Zdarek: Physiol. Chem. **69**: 127, 1910.
19. Teesdale: U. S. Forest Products, Wood Preserving **3**: 80, 1916; **4**: 6, 1917.
20. Bloxam: Chem. Ztg., 1893, p. 1244. Efront: Compt. rend. Acad. d. sc. **18**: 1420, 1894.
21. Kobert: Lehrbuch der Intoxikationen, 1906, p. 201.
22. Stanton, J. N., and Kahn, Max: Sodium Fluorid Poisoning, J. A. M. A. **64**: 1985 (June 12) 1915.
23. Vallée: J. de pharm. et de chim. **7**: 5, 1920.
24. Schyzzer: New York M. J. **24**: 1, 1901.
25. Hickey: Bull. Massachusetts Board of Health, 1911, p. 341.

potassium and sodium tartrate were severely poisoned, recovering two days later. A chemical examination of the potassium and sodium tartrate, purchased at the same drug store, showed it to contain a large proportion of sodium fluorid. Investigation revealed that the poison was obtained from an artists' supply store. Two barrels were in the same room, each containing a white powder, one sodium fluorid and the other sodium and potassium tartrate.

Baldwin [26] has reported a number of cases of poisoning and death from accidental ingestion of sodium fluorid. In one case, a man ate three or four pancakes prepared by using a roach powder in mistake for baking powder. Death occurred in ten or twelve hours. The fatal dose was estimated at 10 gm. Others of the family ate less of the pancakes, and recovered in two days.

In another instance, about 26 gm. of sodium fluorid was used instead of baking powder. Four members of a family ate nine, six, five and one cake, respectively. If the mixing was done thoroughly, the dose would have been 9, 6, 5 and 1 gm. All became sick, recovering in a few days, except the mother, who did not fully recover for one month. About 50 grains were taken in mistake for potassium and sodium tartrate by an intoxicated man. He was taken with violent vomiting and purging, but recovered in two days.

*Presence of Sodium Fluorid in Four Cases**

	Case 1	Case 2	Case 3	Case 4
Stomach	0.0329	0.2432	0.2096	0.1343
Liver	0.0056	0.0154	0.2524	.....
Kidney	Trace	R 0.1306 L 0.1234	0.0712	.....
Bowel	0.0218	0.2388	0.4864	.....
Bowel content	.....	0.0094	.....	.....
Spleen	.....	0.2354	.....	.....
Pancreas	.....	Negative	.....	.....
Blood	.....	0.1446	.....	.....
Lung	.....	0.1560	.....	.....
Heart	.....	0.1946	.....	.....

* Sodium fluorid in grams per hundred grams of tissue. R, right kidney; L, left kidney.

REPORT OF CASES

The three accidental deaths and one suicide here reported from the use of sodium fluorid occurred in Chicago and came before the coroner's office.

CASE 1.—C. Y., a woman, aged 59, made an omelet, Feb. 16, 1921, using an unknown amount of roach powder in place of starch. A few minutes later, 6:30 p. m., she complained of a chilly feeling and weakness. There were no gastrointestinal symptoms. The patient died at 10 p. m. Necropsy on the embalmed body gave no noteworthy alterations of the organs of the thorax and abdomen, except in the stomach and bowel. The stomach walls were edematous, with areas of congestion and small hemorrhages. The mucosa of the small bowel was congested and edematous. A chemical examination of the organs demonstrated the presence of sodium fluorid. The powder used for starch contained 63.64 per cent. of sodium fluorid.

CASE 2.—M. C., a woman, aged 45, took from 4.5 to 5 gm. of a white powder for a laxative at 3 p. m., Feb. 5, 1923. In a few minutes she was found in the bath room, complaining of nausea and cramps. There was an excessive thirst. She complained of muscular weakness, and was unable to walk. There was vomiting of bloody fluid, diarrhea, paralysis of the facial muscles, and loss of speech. A physician was not called until 5 o'clock. The patient died at 7, four hours after the poison was taken. The patient had a roentgen-ray burn on the left side of the neck which was being treated as a possible carcinoma. The cause of death on the burial certificate was given as carcinoma. Six weeks later the body was exhumed, and no evidence of carcinoma was found. The gross pathologic changes were similar to those recorded in the preceding necropsy. A chemical examination of the organs revealed the presence of sodium fluorid as shown in the table.

CASE 3.—A. C., a woman, aged 36, sister of the preceding patient, took 17 gm. of the same laxative in a glass of water at 7 p. m., March 14, 1923. The taste was bitter and caused severe burning, pain and a feeling of nausea. Within five minutes, severe vomiting occurred; in ten minutes, the patient was moaning, with great pain over the whole abdomen; she became very pale, and then purple spots appeared on the face. Ptyalism was noted. The lower extremities became paralyzed, with simultaneous loss of speech. Excessive cold perspiration was wiped off the face by a sister, who put the same handkerchief to her face and noted a burning sensation. The fluorid was probably excreted in the sweat. The vomitus was bloody. There was great thirst the same as in Case 2. Death occurred in three quarters of an hour. Gastric lavage, syrup of ipecac and 1/10 grain of apomorphin were used for treatment.

A postmortem showed that there were no external visible marks of violence on the body. The lungs presented an acute edema. The heart grossly was without changes of note. The liver, spleen, pancreas, suprarenals and urinary bladder presented no gross changes. The gastric mucosa was hemorrhagic, the wall edematous and the mucosa in part necrotic. The mucosa of the duodenum and the jejunum was edematous. The stomach contained about 100 c.c. of turbid, sanguineous fluid of an alkaline reaction.

A chemical examination of the stomach, liver, kidneys and bowel showed the presence of sodium fluorid. The white substance in a wrongly labeled bottle contained 90 per cent. of sodium fluorid.

CASE 4.—A. S., a woman, aged 19, took 2 teaspoonfuls of a rat poison with suicidal intent. A severe burning pain in the stomach, vomiting and diarrhea, with muscular paralysis and loss of speech, occurred as in the previous cases. An examination of the principal organs of the thorax and abdomen gave evidence of congestion and marked hyperemia. The stomach walls were edematous, with a few small scattered hemorrhages. A chemical examination of the stomach gave tests for sodium fluorid.

COMMENT

In mammals, sodium fluorid causes salivation, gastroenteritis, dyspnea, convulsions and failure of the heart and respiration. In man, the chief symptoms are burning in the stomach and bowel, muscular paralysis, vomiting and diarrhea, and failure of the heart and respiration. Salivation was noted in only one case, while convulsions were not noted in any case.

It is interesting to note that in all cases death occurred in from three-fourths hour to four hours, with the exception of Baldwin's case (from ten to twelve hours), and that the lethal dose was between 5 and 10 gm. Intravenous injection in dogs of 0.05 and 0.1 gm. of sodium fluorid per kilogram of body weight are fatal. With white rats the lethal dose I found to be 0.1 gm. of the chemically pure salt per kilogram of weight when given by mouth, death being delayed for from eight to twenty-six hours. In the nonfatal cases of poisoning, recovery occurred in from two days to one month. The toxicity of the sodium fluorid varies considerably in the different animals used, and probably is more a factor of the purity of the salt used. Tappenier found 0.15 gm. per kilogram of weight, Blauzat, 0.08 gm. per kilogram, while Brandl gave from 0.50 to 0.60 gm. per kilogram without the least accident. The values found by Rabuteau [27] were in error, as his sodium fluorid was found to be impure.[28]

26. Baldwin: J. Am. Chem. Soc. **21**: 517, 1899.

27. Rabuteau: Etude expérimentale sur les effets physiologiques des fluorures et des composés métalliques en general, Paris, 1867.

28. Schultz: Arch. f. exper. Path. u. Pharmakol. **25**: 236, 1889.

The action of hydrofluoric acid and sodium fluorid are similar. The latter is reabsorbed in the stomach, so it does not make any difference whether it is given intravenously or by mouth, the same changes being found in the stomach mucosa.

Schultz [28] found that, when subcutaneously injected, the lethal dose for rabbits was 0.2 to 0.4 gm.; for dogs, 0.3 gm.; for frogs, 0.005 gm. Heidenhain [29] found from 0.05 to 0.10 gm. per kilogram of weight to be fatal to dogs when injected into the blood stream. Weinland [30] found that sodium fluorid in 2.10 per cent. strength killed the mucous membrane from the throat of a frog in one minute; sodium iodid, 7.5 per cent., in ten minutes; sodium bromid, in forty-five minutes; sodium chlorid, 2.9 per cent., in sixty minutes. Grutzner,[31] using equimolecular proportions of the foregoing salts, found the same order of sensitiveness for nerves. Czrellitzer [32] concludes, after reviewing the work of others, that sodium fluorid is an active poison for micro-organisms of all kinds, algae, nerves and muscles of the higher organisms.

Many mistakes in the future could be obviated if all the insecticides were colored with 10 per cent. lamp black or other coloring matter.

In suspected cases of poisoning, the soluble sodium salt may be rendered inert by conversion to the insoluble calcium fluorid by copious and repeated gastric lavage with lime water or a weak solution of calcium chlorid.

RADIOLOGIC GASTRO-INTESTINAL STUDIES IN EPILEPSY*

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Chronic constipation as an exciting factor is a frequent complaint of patients with epileptiform seizures. It is noted by clinicians that attacks may be controlled or decreased in frequency by careful catharsis.[1] Whether constipation is an exciting cause of the attacks in patients with epilepsy is not known as an established fact. Numerous cases have been reported in which patients have been entirely relieved of their seizures following surgical procedure, i. e., colostomy,[2] the operation being indicated by the findings of chronic colonic stasis, or by daily rectal injections. It therefore seemed desirable to study the amount of colonic stasis found in a series of epileptic patients entering the University Hospital for treatment. These were, so far as any gastro-intestinal symptoms were concerned, entirely unselected. The findings were distinctly surprising, and cast doubt on the rationality of indiscriminate gastro-intestinal operations in these cases.

In most of the modern textbooks, when considering the treatment and management of epileptiform seizures, there is particular emphasis relative to avoidance of "constipation."

A review of the literature of roentgenographic findings in intestinal stasis shows several types and phenomena of "constipation," dyschezia of Hertz,[3] mechanical obstruction, ptosis, and those of reflex origin from abdominal pathologic conditions;[4] but a correlation of these findings with constitutional states is somewhat meager, and is usually of a negative character.

The trend of opinion in literature is inclined to lead one to believe that there exists a colonic stasis in "constipation" associated with epilepsy. However, even though practically all of the patients referred to the department of roentgenology complained of "constipation," but not always in direct relationship with attacks, it was found that instead of a colonic stasis, a hypermotility of the large bowel existed in more than 50 per cent. of the cases, with a normal motility in others.

Motility Index and Roentgen-Ray Findings in the First Fifty Consecutive Cases of One Hundred and Twenty-Five

Patient	Sex*	Age Years	Motility	Roentgen-Ray Diagnosis
1	♂	16	00010?	No diagnosis
2	♀	18	000100	Chronic appendix adhesions
3	♂	17	00000X	No diagnosis
4	♂	25	000100	Chronic appendix
5	♀	27	00000X	Negative
6	♂	..	000001	Negative
7	♂	20	000000	Negative
8	♂	..	0001XX	No diagnosis
9	♂	27	01010?	Chronic appendix adhesions
10	♀	16	011?00	Jejunal dyspepsia
11	♀	45	00000X	Chronic appendix
12	♂	29	00X0XX	Negative
13	♂	..	000000	Chronic appendix
14	♂	..	0001X0	Chronic appendix
15	♂	20	00X?0?	Negative
16	♂	56	00010X	Adhesions
17	♀	47	000100	No diagnosis
18	♂	31	000?0?	Adhesions
19	♀	31	000000	Ptosis
20	♂	23	000000	Negative
21	♂	..	0XX000	Duodenal ulcer
22	♂	..	000000	No diagnosis
23	♂	..	000?00	Negative
24	♂	16	0001?X	Chronic appendix
25	♂	46	001100	Negative
26	♀	25	01110X	Negative
27	♂	..	0001XX	Chronic appendix adhesions
28	♀	29	00000X	No diagnosis
29	♂	20	00000X	Negative
30	♂	18	00XX0X	Negative
31	♂	..	00?100	No diagnosis
32	♂	21	0000?X	No diagnosis
33	♂	21	000000	Chronic appendix
34	♀	..	000000	Negative
35	♂	..	00000?	Negative
36	♂	40	0000X?	Chronic appendix
37	♂	19	000000	No diagnosis
38	♀	14	000100	Negative
39	♂	15	00000X	Chronic appendix
40	♀	46	001100	Jejunal dyspepsia
41	♂	15	00000X	Chronic appendix
42	♂	..	00?0?X	Negative
43	♀	27	000??X	No diagnosis
44	♀	29	001100	Adhesions
45	♂	36	00X100	No diagnosis
46	♂	..	00000X	Chronic appendix
47	♀	26	00000X	Negative
48	♂	..	0XX00X	Duodenal ulcer
49	♂	19	00X000	Negative
50	♂	33	0000XX	No diagnosis

* In this column ♂ indicates male, and ♀, female.

The following instructions are furnished to all patients having roentgen-ray examinations: The examination extends over a period of at least twenty-four hours, after the first observation, and, in many cases, it must be extended for forty-eight hours. Preparation is begun on the previous day. On the day preceding

29. Heidenhain: Arch. f. d. ges. Physiol. **56**: 579, 1894.
30. Weinland: Arch. d. ges. Physiol. **58**: 105, 1894.
31. Grutzner: Arch. f. d. ges. Physiol. **53**: 83, 1892.
32. Czrellitzer: Zur Kentniss des Fluornatrium, Inaug. Diss., Breslau, 1895.

* From the Departments of Neurology and Roentgenology in the Hospital of the University of Michigan.

1. Hurst, A. F.: Constipation and Allied Intestinal Disorders, London, Frowde, 1909, p. 359.
2. Reed, C. A. L.: Constipation and Intestinal Infection in Epileptics, J. A. M. A. **67**: 1157 (Oct. 14) 1916.
3. Hertz, A. F.: Chronic Intestinal Stasis, Brit. M. J. **1**: 817 (April 10) 1913.
4. Case, J. T.: The Roentgenologic Findings in Malignant Obstruction of the Colon, Lancet-Clinic **111**: 216-19, 1914. Carmen, R. D.: The Roentgen Diagnosis of Diseases of the Alimentary Canal, Ed. 2, Philadelphia, W. B. Saunders Company, 1920, pp. 586-598. Skinner, E. H.: The X-Ray Examination of Habitual Constipation, J. Missouri M. A. **10**: 51-7, 1913-1914. Einhorn, Max: Intestinal Stasis, J. A. M. A. **62**: 1111 (Sept. 26) 1914. Jordan, A. C.: Radiography in Intestinal Stasis, Lancet **2**: 1824-1828, 1911.

the first examination, the 12 o'clock or noon meal is taken as usual, but the customary evening meal is omitted. At 9 p. m., the full meal is taken, including meat and potatoes, or other food, to suit the taste and capacity of the individual, disregarding any previous diet restrictions or medication. We wish the patient to have the equivalent of what he would consider the best meal of the day. With the meal, the barium powder must be taken in water, milk, lactone, mashed potatoes or some other suitable vehicle.

At 9 a. m. the next day, the patient is required to report at the roentgen-ray room for the first examinations. A preliminary fluoroscopic examination is made in the erect position; a suspension of barium sulphate is given, and the esophageal and stomach function is noted. Two 8-ounce glasses of barium lactone are then given: The patient is examined in the erect position and then in the dorsal, and a plate is taken in the prone position.

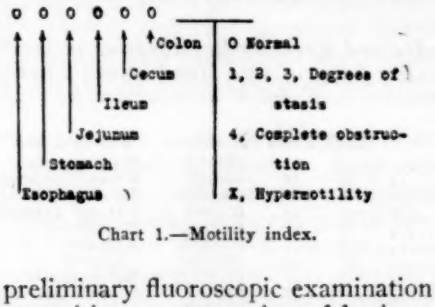

Chart 1.—Motility index.

No food is taken from the time of the second observation and plate, until another plate is made in the prone position six hours later. After the second plate is made, the patient may eat anything he pleases and whenever he wishes, reporting for the third plate at 8:30 a. m. the next morning. The patient is instructed to take no laxative or cathartic during the period of the examination. Water or weak tea is allowed at any time.

Conclusions are drawn from both screen and plate observations, and, as this paper deals only with the motility, a detailed explanation of the other points considered in the examination and in the drawing of conclusions will not be discussed, as they are quite familiar to most physicians.

We have been taught that the movements of the large bowel are mainly to and fro movements. There seems to be a point not far from the hepatic flexure which serves as a pacemaker for the entire bowel. In the proximal portion, the cecum and ascendens, the normal direction of peristalsis is upward, that of the colon distal to this point is downward. Therefore, the contents of the cecum are constantly being returned to the lower portion of the cecum, and find their way out only as they are crowded forward by the addition of material coming from the ileum. So we see the passive filling of the transversus with a mass of material that is already fairly well desiccated and being retained there as in a reservoir. In the meantime, the contents of the cecum are constantly being mixed with new material, and the individual particles may remain for a considerable period of time, awaiting their turn to escape, or return into the ileum.[5]

In the transversus, the progress is very slow indeed. From time to time, a vigorous peristalsis arises in the region of the hepatic flexure, which sweeps everything before it into the pelvic colon or the rectum. These so-called mass movements, comparable to the "rushes" of the small bowel, do not occur more than a few times a day, possibly only once, unless initiated by manipulation of the abdomen. In case these mass movements are long deferred, the bowel contents may passively extend into the descendens, and into the pelvic colon, but, as a rule, this portion of the large intestine is comparatively empty.[6] There has also been described the factor of a peripheral current about a central cylindric fecal mass in the colon.[7]

The theory has been advanced that an irritative lesion involving the hepatic flexure in the neighborhood of this pacemaker leads to an increased frequency of the mass movements with a corresponding hastening of barium shadows through the transversus; while a depressing or inhibiting lesion would lead to a stasis in the transversus. Some support is lent to this theory by the fact that the transversus is less apt to contain barium in gallbladder disease, although, of course, one might be led to expect that either an irritative or an inhibiting lesion might be found in this region, with opposite results.

The fundamental principle of gastro-intestinal disease is that the motility of the bowel is increased below the level of injury or irritation and diminished to the point of complete stasis about it.[7] Therefore, the cases here presented which show definite pathologic changes must be taken into consideration.

As a matter of record of the findings noted in all gastro-intestinal examinations, in order that conclusions may be drawn from all points and angles showing a divergence from the normal in the motility of the esophagus, stomach, upper small bowel, terminal ileum, cecum and colon, a normal motility index has been devised and is in use in this laboratory. The accompanying charts are practically self-explanatory; that is, six points of motility are taken, zero being considered normal, and the numerals 1, 2, 3 and 4 as degrees of stasis, while an X in any of the six places means a hypermotility of that portion of the gastro-intestinal tract.

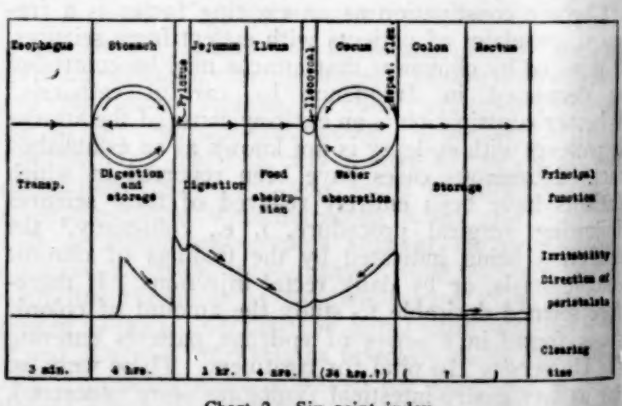

Chart 2.—Six point index.

Chart 2 designates the six portions of the tract to be considered, their principal functions, the direction of peristalsis (shown as a curve), and the clearing time; that is, if any of these six points are clear after the period shown, they are considered as zero for those places. If they are empty before the time allowed, X is inserted in the corresponding place in the six point index. In stasis, the proper digit is used to denote the

5. Case, J. T.: A Critical Study of Intestinal Stasis with New Variations Respecting the Causes of Ideal Stasis, Arch. Roentgen Ray 19: 45 (July) 1914.

6. Van Zwaluwenburg, J. G.: Unpublished lecture notes.

7. Mills, R. W.: X-Ray Evidence of Abdominal Small Intestine States Embodying a Hypothesis of the Transmission of Gastro-Intestinal Tension, Am. J. Roentgenol. 9: 199 (April) 1922.

amount of stasis. Necessarily, there is a certain personal equation which enters this index reading, and it may be here stated that the results, or indexes of the patients here submitted, have been given by five different members of the roentgen-ray staff, extending over a period of time which these cases cover.

It will be noted in the accompanying table that the main point which we wish to bring out is that in a considerable number of these patients, who are all epileptic, there is shown in the motility index an X denoting hypermotility of the colon, and in some instances an X in the last two places, denoting hypermotility of both cecum and colon.

This series was selected irrespective of any other conditions present. It will be noted that about three fourths of these patients are males; but the same percentage exists in practically all of the various services of this hospital. The age period also varies, and it will be noted that the greater number of cases shown gives the age at which epileptiform seizures most commonly appear.

CONCLUSIONS

1. No definite evidence of colonic stasis is found by roentgen-ray examination of the gastro-intestinal tract of epileptics.
2. The term "constipation" is a complaint of the patient and associated with a cathartic habit. It does not indicate colonic stasis.
3. There are no indications for surgical procedure to relieve these patients of colonic stasis, since a true colonic stasis does not exist.

THE VALUE OF THE KAHN PRECIPITATION TEST FOR SYPHILIS *

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Owing to the difficult and time-consuming technic and to the existence of a very small but real element of error in the Wassermann test, investigators have been searching for years for a diagnostic method for syphilis which would prove still more accurate and less laborious. Most of these efforts have centered around a flocculation or precipitation phenomenon, which occurs as a colloidal reaction in connection with mixtures of certain antigens and syphilitic serums.

Space does not permit a discussion of the various methods brought forward to date. It will suffice to say that the precipitation test proposed by Kahn [1] offers certain advantages over the others in the matter of ease of performance and interpretation and possibly in accuracy. Our experience, as well as that of Keim and Wile [2] leads us to believe that more attention should be given this method, and the present critical analysis of our results is submitted with this end in view.

The actual test is extremely simple. The serum is inactivated at 56 C. in the water bath for thirty minutes as for the Wassermann test. To 0.3 c.c. of serum in a three-eighths inch test-tube is added 0.05 c.c. of the diluted antigen. The tube is shaken vigorously for three minutes and placed in the incubator at 37 C. overnight. (Too narrow a test tube renders shaking difficult.) It should not be agitated before the result is read in the morning.

A strongly positive reaction is evidenced by the presence of one or more large clumps of precipitate which may be floating at the top, or throughout the liquid, or may be lying at the bottom. In the latter case, very slight agitation will at once reveal its presence. We have found it convenient to designate the result as four plus when all the precipitate is gathered into one large clump; three plus when in several large clumps; two plus when the precipitate is easily seen as a fairly coarse flocculation, and one plus when in the form of a fine granular suspension visible to the naked eye but best viewed by the aid of a watchmaker's lens. A negative serum appears quite free of precipitation.

Analysis of One Thousand Five Hundred and Forty Parallel Tests

	Proved Cases of Syphilis	Unproved Cases of Syphilis	Nonsyphilitic Cases*
Wassermann test, positive...	447	11	.....
Wassermann test, negative...	19 (Treated or early cases)	..	1,065
Kahn test, positive.....	414	11	11 (One plus)
Kahn test, negative.....	39 (Treated or early cases)	..	1,065

* Including thoroughly treated cases yielding both negative Wassermann and negative Kahn tests.

RESULTS

We have now used this test in parallel with the Wassermann reaction [3] in nearly 2,000 consecutive serums submitted from the wards and outpatient department of the Toronto General Hospital. At the present time, the first 1,500 of these tests have been subjected to careful analysis, with the results recorded in the accompanying table.

In the 1,540 parallel tests, there was agreement between the two procedures in 1,459 serums, or 94.2 per cent. Of the ninety discrepancies, fifty-one were instances of a positive Wassermann test with a negative Kahn test. Of these, all but eleven were in proved cases of syphilis, most of them treated. The unproved cases were regarded as probably syphilitic because of the finding of persistent complement fixation in each case. The remaining thirty-nine discrepancies were instances of a positive Kahn test with a negative Wassermann test. Of these, slightly less than one half were in proved cases of syphilis.

It will be noted that the percentage of agreements in this series (94.2) is remarkably close to the figures given in the series reported by Dreyer and Ward,[4] Wang,[5] Sachs and Georgi,[6] and Nathan and Weichbrodt.[7] The actual percentage, however, is of little importance, unless the proportion of syphilitic cases in the series, and especially the proportion of positive treated cases, is stated. The reason for this is that very few discrepancies appear in the nonsyphilitic serums, and if the series is made up mostly of these,

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* From the Clinical Laboratories of the Department of Medicine, University of Toronto.

1. Kahn, R. L.: Simple Quantitative Precipitation Reaction for Syphilis, Arch. Dermat. & Syph. **5**: 570 (May) 1922; **5**: 734 (June) 1922.
2. Keim, H. L., and Wile, U. J.: Kahn Precipitation Test in the Diagnosis of Syphilis, J. A. M. A. **79**: 870 (Sept. 9) 1922.
3. The technic of the Wassermann test as performed in our laboratory has been described in the literature on different occasions, and need not be detailed here. The antigen employed is a cholesterinized alcoholic extract of human heart. The serum amounts are 0.2, 0.1 and 0.05 c.c.
4. Dreyer, Georges, and Ward, H. K.: Lancet **1**: 956 (May 7) 1921.
5. Wang, C. Y.: Lancet **1**: 274 (Feb. 11) 1922.
6. Sachs, H., and Georgi, W.: Med. Klin. **14**: 805, 1918.
7. Nathan and Weichbrodt: München. med. Wchnschr. **65**: 1280.

the percentage of agreements is bound to be very high. For example, Moody [8] reports 98 per cent. agreements in 1,500 cases, only 15 per cent. of which, however, were syphilitic. In the tests here reported, there were at least 466 syphilitic serums, out of a total of 1,540, making a percentage of a little over 30, the majority of which were treated. In the series reported by Dreyer and Ward, as well as that of Wang, the proportion of syphilitic serums was approximately one third of the total number.

Out of ten instances in 1,540 tests, in which the Wassermann reaction was very strongly positive and the Kahn test negative, five patients had been treated; one had a history of syphilis; one had a history of exposures; one had a case of pyelitis with fever, and two had no history of syphilis.

Out of forty-one instances in 1,540 tests in which the Wassermann reaction was less strongly positive and the Kahn test negative, twenty-eight patients had been treated; four presented early primary syphilis; two had provocative cases; one had a case of tabes; one was pregnant; in two, Wassermann fixation was questionable, and three had no history of syphilis.

Out of five instances in 1,540 tests in which four plus or three plus Kahn tests were found, with a negative Wassermann reaction, one patient had been treated; one had a syphilitic husband and had later given a weakly positive Wassermann reaction in the blood and a strongly positive Wassermann reaction in the cerebrospinal fluid; one had a case of paraphimosis, with no definite history of syphilis; one had a case of arthritis, and one had no history of syphilis.

Out of thirty-four instances in 1,540 tests in which the Kahn test was two plus or one plus, with a negative Wassermann reaction, sixteen patients had been treated; one presented early primary syphilis; one had a case of cerebral tumor, and sixteen gave no history of syphilis. In nearly all these patients, the reaction was only one plus and could not lead to error if the same precaution in interpretation is taken as in the case of slight complement fixation.

In six instances of pneumonia in which the Wassermann test yielded a certain amount of nonspecific fixation during the height of the fever and then became negative, the Kahn test was negative throughout. It would seem, therefore, that this procedure is of definite value in checking up nonspecific results in such cases. In several instances of pneumonia in which both tests were positive, subsequent investigation proved the existence of syphilis. In the one case of pregnancy in which a nonspecific fixation was obtained in the Wassermann test, the Kahn test was also positive, becoming negative along with the former after the patient was delivered. In all the cases of tuberculosis in the series, several of which were advanced, both tests were negative.

CONCLUSIONS

In a critical survey of our results, a number of outstanding points appear to warrant emphasis:

1. It will be seen that while the Kahn precipitation test affords results remarkably parallel with the Wassermann test, it is not yet the equal of the latter in reliability, at least in our hands. It fails principally in three classes of cases: (*a*) treated syphilis; (*b*) early primary syphilis, and (*c*) cerebrospinal syphilis. Here the failure is the more serious, since the test cannot be applied successfully to the cerebrospinal fluid.

2. Many of the discrepancies in treated cases were instances of negative Kahn tests with the Wassermann fixation as weak as 1 0 0.

3. It must be remembered that in the cases marked "no history of syphilis," one is depending for the most part on the hospital interns, some of whom are careful and trustworthy, and some apparently very unreliable. Nevertheless, the Wassermann reaction was positive and the Kahn test negative in four cases with "no history of syphilis," whereas the converse was true in sixteen cases with the same history.

4. It would seem that, just as in nonspecific fixations in the Wassermann test which commonly read up to 3 2 0 or thereabouts, a small precipitation, such as one plus, in the absence of a history of syphilis should not be taken too seriously.

5. In a large hospital, in which many specimens of blood are handled, we have long made it a rule that in all cases of Wassermann-positive blood without history or signs of syphilis the test is to be repeated before the report is finally made. This is to avoid errors resulting from mixing specimens, and misinterpretation of nonspecific fixations. In such cases, a confirmatory Kahn test is of the greatest importance, and tends to increase one's confidence in the Wassermann reading, in spite of absence of history or signs. We therefore now perform the two tests in parallel as a routine in the Toronto General Hospital.

6. The ease with which this test is done makes it practicable for use in laboratories and offices in which facilities for performing the Wassermann test are lacking. Carefully conducted, it is almost as reliable as the latter.

112 College Street.

8. Moody, W. B.: Precipitin Reaction for Syphilis, J. A. M. A. 80: 383 (Feb. 10) 1923.

ANTACID GASTRIC THERAPY, WITH ESPECIAL REFERENCE TO THE USE OF NEUTRAL ANTACIDS

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It is common knowledge that many cases of pain after meals are relieved by the administration of alkalis. In such instances, an underlying hyperacidity is generally assumed to exist, and the symptomatic relief is usually explained thus: The excess of acid acts as an irritant. This irritation causes a spasm of the gastric musculature, including that of the orifices of the stomach. The increased intragastric tension is painful. The administration of an alkali reduces the acidity, lessens the spasm, and dissipates the pain.

That such an explanation can be but partially true would appear from the following considerations: It cannot explain the lasting effect of the relief, since it has been shown that within a short time (e. g., one-half hour) the original gastric acidity may be reproduced; in fact, often exceeded. Similarly, after a complete clinical cure, the gastric acidity may be higher than ever. Just how do alkalis control pain in the presence of normal, subnormal or absent gastric acidity? Finally, to which of the several known effects of alkali action is the pain-stilling feature to be attributed?

The last question brings us perhaps nearest the crux of the matter. Taking the most commonly used alkali,

sodium bicarbonate, we find that its therapeutic effects may be attributed to one or more of these qualities: (1) its action as a local antacid; (2) its action as a systemic alkali, or (3) its action as a carminative. Moreover, to explain its action in a case of achylia gastrica, one might assume the existence of some specific local alkaline (but not antacid) action. Finally, there may be considered the possible influence of the sodium ions on the general metabolism.

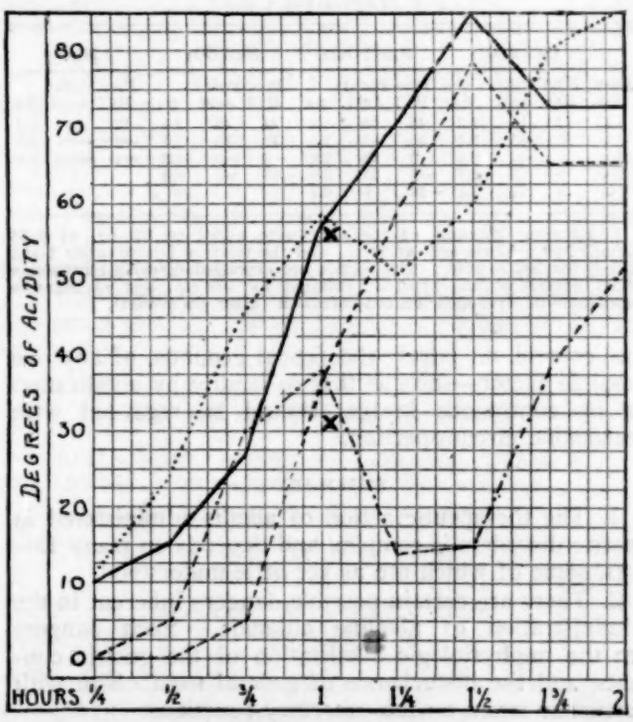
The same type of reasoning would apply to the use of other alkaline salts. Thus, magnesium oxid acts (1) as a local antacid; (2) as a systemic alkali, and (3) as a cathartic by virtue of its magnesium ions. In short, take what alkali we will, we find that its action is multiple rather than single, late as well as immediate, remote as well as local. It is this very multiplicity of action, desirable as it may be in some instances, that is a potential source of therapeutic confusion and embarrassment. Even lay patients will often wonder whether, in the course of time, "the soda may not wear off the lining of the stomach," and physicians have long raised the question whether alkalization of the gastric contents may not be regarded, to say the least, as "unphysiologic." Recently, more particular attention has been focused on the matter of systemic alkalization. Thus, Hardt and Rivers,[1] analyzing a series of cases of peptic ulcer that were treated by the Sippy method, found that some patients developed definite symptoms of toxemia associated with renal changes and with alteration in the blood chemistry. These disorders occurred whether there had been previous renal complications or not.

On the other hand, it is claimed by Le Noir[2] that alkalis (sodium bicarbonate) may act beneficially in gastric ulcer by overcoming hepatic insufficiency and acidosis, and that because of possible irritating local action, their administration by mouth is to be replaced, in appropriate cases, by their injection by rectum.

Such considerations as these lead us to the conclusion that the last word in alkaline therapy is still unsaid, and therefore any effort to simplify the factors in the problem should be welcome. Accordingly, it appears appropriate to call attention to the fact, pointed out recently by Greenwald,[3] that the secondary and tertiary phosphates of magnesium and calcium act as local antacids without producing systemic alkalization. Being themselves neutral in reaction and insoluble except in an excess of free acid, they can never alkalize the gastric contents. Their activity is limited to depressing sharply the free acidity without altering to any such great extent the total acidity. These facts become evident from a glance at the accompanying table. The curve after a "fractional" test meal shows the marked depression of free acidity obtained by administering a teaspoonful of bone ash (calcium phosphate) to a patient with hyperacidity and hyperchlorhydria. The subsequent rise in acidity is similar to that observed after the administration of an alkaline antacid.

CLINICAL OBSERVATIONS

My experience with these neutral antacids covers a period of more than two years. The present study is based on a review of twenty private cases, and approximately 200 cases at the Vanderbilt Clinic. At first, bone ash (crude calcium phosphate) was used; later, pure calcium phosphate and magnesium phosphate were employed. Both the dibasic ($MgHPO_4$, $CaHPO_4$) and the tribasic ($Mg_3[PO_4]_2$, $Ca_3[PO_4]_2$) forms were employed, the latter being, of course, the more effective neutralizer. The calcium salts being slightly constipating, and the magnesium being laxative in action, the tendency of the patient either to constipation or to diarrhea was used as a guide to the choice of the appropriate drug in the particular case. The dose of either compound was from one-third teaspoonful to two teaspoonfuls (1 to 6 gm.) three times a day after meals. No ill results have been observed, nor, indeed, do they seem possible, since, in addition to their action on acid gastric juice and on the bowels, these drugs have no known effect on the economy, it having been definitely shown that they are not excreted through the urine. The salts are tasteless, and may be administered in bulk or in capsules, as preferred. Care should be taken that the neutral (tasteless) and not the acid (sour) phosphates be dispensed by the druggist.



Curve of fractional test meal after administration of 3 gm. of bone ash (calcium phosphate) showing sharp and prolonged depression of free acidity with subsequent rise, in a case of hyperchlorhydria and hyperacidity. Control curves: continuous line, total acidity; dash line, free acidity. Experimental results: dotted line, total acidity; dot and dash line, free acidity; *X*, time of administration of drug.

For the control of the common symptoms of hyperacidity, such as pain, heartburn, sour belching, distress and gas, the neutral antacids are clinically effective in most cases. In a few instances, however, these symptoms are either not completely controlled or are not so rapidly relieved as by the alkaline antacids. Such cases are generally, but not invariably, those in which a carminative action seems necessary. However, it has been observed that, once initial relief is obtained by any method, permanent comfort can generally be assured by the subsequent use of the neutral antacids, thus making for real physiologic and therapeutic economy. I am

1. Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. 31: 171-180 (Feb.) 1923.
2. Le Noir, P.: Bicarbonate de soude et traitement de l'ulcère gastro-duodénal; son administration par voie rectale, Bull. de l'Acad. de méd. 88: 157-160 (Oct. 24) 1922.
3. Greenwald, I.: Gastric Antacids Which Cannot Act as Systemic Alkalis, Proc. Soc. Exper. Biol. & Med., to be published.

now making use of this principle in my treatment of ulcer cases, along the general lines of the Sippy method. When possible, neutral antacids are administered in place of alkalis from the beginning. If symptoms are not controlled, the original alkaline therapy is carried out until they are controlled, at which time the neutral antacids are substituted with occasional assistance from the alkalis only when necessary. It is felt that in this way neutralization of the gastric juice—should such an ideal be regarded as desirable—can be carried out for longer periods and more safely than if alkalis alone were relied on for this purpose. This caution should seem all the more justifiable, because, as a general proposition, our knowledge of the etiology of peptic ulcer is still so incomplete that an attempt at the abso-

Neutralizing Effects of Calcium Phosphate and Magnesium Phosphate as Compared with Sodium Bicarbonate and Magnesium Oxid *

	$Ca_3(PO_4)_2$			$Mg_3(PO_4)_2$			$NaHCO_3$			MgO		
Amt., Gm.	Free HCl	Total Acid	p_H	Free HCl	Total Acid	p_H	Free HCl	Total Acid	p_H	Free HCl	Total Acid	p_H
0.1	44	55	1.3	45	50	1.4	44	46	1.4	13	14	1.9
0.2	36	55	1.7	35	45	1.6	32	35	1.5	−2	−0.4	8.0
0.5	24	53	1.8	9	35	2.8	−3	−2	8.2	−4	−2.3	9.1
1.0	9	52	2.6	−9	23	6.0	−65	−3	8.4			
4.0	2	51	3.3	−16	6	6.7						

* Increasing amounts of the salts were added to 100 c.c. of 0.555 normal hydrochloric acid at 37 C., and the mixture filtered after being stirred for ten minutes. The results are expressed in cubic centimeters of 0.1 normal sodium hydroxid required for 100 c.c., and as negative logarithms of hydrogen ion concentration (after Greenwald).

lute control, on purely theoretical grounds, of any one possible factor—such as that of acidity by alkalization or by continuous lavage—should be regarded with reasonable circumspection.

SUMMARY

1. The therapeutic action of alkalis administered in gastric disorders is complex and depends on many factors, some of which are as yet little understood.

2. There are certain possible dangers inherent in the administration of alkaline antacids. Such dangers are the unphysiologic alkalization of the gastric contents, and the disturbance of general metabolism with particular strain on the excretory functions.

3. The use of the neutral antacids (phosphates of calcium and magnesium) is free from the dangers mentioned above.

4. Limited clinical experience has shown the general efficacy of these antacids. They would appear to be particularly useful in cases in which prolonged reduction of excessive gastric acidity is deemed advisable.

Levulose Tolerance Test for Hepatic Efficiency.—The claims put forward by Maclean, Spence and Brett as to the value of the levulose tolerance test as a means of estimating the efficiency of the liver are fully corroborated by my work. Contrary to certain criticisms that have been made recently, the test forms a valuable indication of hepatic disease in certain cases where there is no clinical evidence of damage to the liver. And, further, it is of value in chronic as well as in acute cases of liver disease, though the response is less marked in the former. In cases of chronic sprue there is no considerable degree of liver inefficiency. In amebiasis the liver is affected in greater or less degree in the large majority, if not in all cases. The test forms a very valuable means of detecting the degree of hepatic inefficiency in this disease, and of showing whether after a course of treatment the efficiency of the liver has been restored.—G. Covell: *Guy's Hosp. Rep.* **73**:367 (July) 1923.

THE ANTIRACHITIC INFLUENCE OF EGG YOLK

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It is a recognized fact that active rickets is relatively uncommon after the second year. This has been attributed by many to the more liberal diet that children receive at this period of life. Exactly what particular foodstuff is responsible for the antirachitic effect has not been determined. Still [1] says, "Next to milk I know of no food which is of more value in the prevention of rickets and in the cure of it than yolk of egg." The same author, however, says further, "There seems to be no specific virtue in cod liver oil; any other oil will do equally well." Doubtless other people have used egg for the same purpose.

No objective evidence of the value of any one of the ordinary foodstuffs in curing rickets in children has ever been presented. Mellanby [2] was the first to show that a dog made rachitic by diet can be cured by adding egg yolk to the rickets-producing diet. In his experiments, the substitution of whole milk for separated milk produced a similar beneficial effect. Recent clinical studies and metabolism experiments with children lead to the inevitable conclusion that milk is a poor antirachitic agent. One year ago, Howland and Kramer [3] presented evidence that the administration, to children suffering with rickets complicated by tetany, of a certain diet that contained purées (vegetables) and egg, had the same effect on the calcium and inorganic phosphorus of the serum as cod liver oil. This observation, which was purely accidental, led us to an investigation of the antirachitic properties of individual articles of the child's dietary.

Howland and Kramer [4] recently reported that animals made rachitic by diet were cured by substituting in the diet 10 per cent. egg yolk for a similar amount of gelatin. Healing of the rickets of children was also accomplished by adding one or two eggs a day to their diet. These observations, and a number made since then, furnish the basis of the present paper.[5]

Seven children, all colored, suffering with rickets, usually of a severe degree, were fed on milk and cereals to which one or two eggs a day were added. All the children with but one exception took the egg well. This child refused the egg for several weeks, but took farina and milk. The rickets was not improved. Later the egg was well taken, and the rickets soon began to heal.

No allergic reactions were observed in any of the children. The usual technic of such studies was observed. Roentgenograms of the extremities were taken on admission and at subsequent intervals, and the blood serum was analyzed for calcium and inorganic phosphorus at the same time. Definite healing

1. Still, G. F.: Common Disorders and Diseases of Childhood, Ed. 3, London, 1915, pp. 104 and 105.
2. Mellanby, E.: Experimental Rickets, Special Report Series 61, Medical Research Council, London, p. 65.
3. Howland, John; and Kramer, Benjamin: Factors Concerned in the Calcification of Bone, Proc. Am. Pediatric Soc., 1922, p. 204.
4. Howland, John; and Kramer, Benjamin: Preliminary Report of Experiments on the Antirachitic Effect of Egg Yolk, read before the Society for Experimental Biology and Medicine, April, 1923.
5. A. F. Hess (Proc. Soc. Exper. Biol. & Med. [April 18] 1923, p. 369) has reported a study of the value of egg yolk in the prevention of rickets in animals and children. The statement is also made that egg yolk will cure rickets that has already developed, but no data are given.

could be demonstrated by the roentgenogram within three weeks after egg was made a part of the diet, and the inorganic phosphorus of the serum increased from the low level of active rickets to the normal of 5 or more milligrams per hundred cubic centimeters of serum.

McCollum [6] and his collaborators have shown that rats fed on a diet low in phosphorus and fat soluble A, and high in calcium, that known as Diet 3143, will develop rickets with absolute regularity. With equal uniformity, the serum of such animals has a calcium concentration of about 10.5 mg. per hundred cubic centimeters and an inorganic phosphorus concentration of 2.5 mg. In the basal diet of two groups of such animals, 10 per cent. of egg yolk was substituted for gelatin. This was fed for six days, and then the animals were killed. The bones showed definite anatomic evidence of healing, and the inorganic phosphorus of the blood serum had risen to 4 or more milligrams per hundred cubic centimeters of serum, while the calcium concentration remained unchanged. The results with children and rats are summarized in the accompanying table.

Treatment by Egg Yolk of Rickets in Children and of Experimental Rickets in Animals

Case	Date of Blood Analysis	In Mg. Per 100 C.c. Serum: Calcium	Inorganic Phosphorus	Product	Diet	Roentgenographic Findings	Date	Treatment Begun
1	3/14/23	9.8	4.2	41	Egg, farina, milk	Rickets	3/14/23	3/14/23
	3/26/23	10.6	5.0	53	Egg, farina, milk	Healing rickets	3/24/23	
	4/ 4/23	10.4	6.1	64	Egg, farina, milk	Healing rickets	4/ 2/23	
2	3/15/23	9.3	3.5	33	Farina, egg	Rickets	3/ 5/23	3/15/23
	4/ 4/23	8.8	4.7	41	Farina, egg	Rickets	4/10/23	
	4/23/23	10.3	5.6	58	Farina, egg	Healing rickets	4/23/23	
	5/ 4/23	9.6	5.8	56	Farina, egg	Healing rickets	5/ 2/23	
3	4/ 7/23	7.2	2.0	14	Milk, farina, egg	Rickets	4/ 4/23	4/ 6/23
	4/23/23	8.6	3.0	25	Milk, farina, egg	Rickets	4/23/23	
	5/ 4/23	10.4	5.8	60	Milk, farina, egg	Healing rickets	5/ 2/23	
4	4/ 7/23	9.4	3.4	32	Milk, farina, toast, egg	Rickets	4/ 7/23	4/10/23
	4/23/23	9.8	3.4	33	Milk, farina, toast, egg	Rickets	4/23/23	
	5/ 4/23	11.2	5.1	57	Milk, farina, toast, egg	Healing rickets	5/ 2/23	
5	4/11/23	8.4	3.7	31	Milk, farina, toast, egg	Rickets	4/10/23	4/15/23
	4/23/23	10.3	3.5	36	Milk, farina, toast, egg	Rickets	4/24/23	
	5/ 4/23	10.2	5.3	54	Milk, farina, toast, egg	Healing rickets	5/ 3/23	
6	5/ 8/23	10.2	3.5	36	Milk, farina, egg	Rickets	4/23/23	
	5/14/23	10.2	4.3	44	Milk, farina, egg	Healing rickets	5/17/23	
	5/23/23	11.0	5.8	64	Milk, farina, egg	Healing rickets	5/22/23	
7	4/26/23	8.8	3.0	26	Egg refused, milk and farina	Very severe rickets (fractures)	4/26/23	
	5/14/23	9.0	2.7	25	Egg taken	Very severe rickets (fractures)	5/ 9/23	5 /9/23
	5/29/23	9.8	4.1	40				
	6/ 7/23	10.0	4.3	43		Healing rickets	6/ 7/23	

Animals	Calcium	Phosphorus	Product	Diet	Anatomic Diagnosis
Control rats.....	10.5	2.5	26	High calcium, low protein, low fat soluble A	Rickets
Treated rats.....	11.0	4.0	44	+ Egg yolk, 10% for 6 days	Healing rickets
Treated rats.....	11.0	4.8	53	+ Egg yolk, 10% for 6 days	Healing rickets

It is interesting, in the light of these findings, to note that for centuries in rural England a food which must have had a very high antirachitic potency as well as a very high caloric value was universally eaten by children as well as adults. This food was known variously as "furmity" or "frumenty," "an wholesome food," says Domini Holliday. The recipe for this food as given by Salmon [7] was as follows:

> Take some new milk or cream and boil it with whole spice (nutmeg, cinnamon, clove). Then put in your wheat or pearled barley boiled very tender in several waters; when it has boiled a while, thicken it with the yolks of eggs well beaten, sweeten it with sugar, and serve it in with fine sugar on the brims of the dish.

CONCLUSIONS

1. Rickets is not beneficially influenced by a diet of milk and cereals.
2. The addition of one or two eggs a day to such a diet will initiate healing, which is usually evident within three weeks after the egg feeding is begun.
3. The chemical changes in the blood serum and the roentgenographic changes in the bones are similar to those which follow the administration of cod liver oil.
4. The addition of 10 per cent. egg yolk to a rickets-producing diet will initiate healing of rickets in the rat in six days.

AN OVARIAN HORMONE

PRELIMINARY REPORT ON ITS LOCALIZATION, EXTRACTION AND PARTIAL PURIFICATION, AND ACTION IN TEST ANIMALS *

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AND
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The fact that double ovariectomy abolishes the cyclic changes which normally occur in the genital tract of female mammals demonstrates that these changes are due to some influence from the ovaries. That this influence is hormonal in nature is indicated by the maintenance of cyclic changes by autotransplantation of the ovaries to other sites in the body.[1] Many attempts have been made to localize the seat of production of an internal secretion in definite ovarian structures. The follicles, the corpora lutea [2] developing in them after ovulation, and the interstitial tissue [3] have all been cited as possible sources, and many different ovarian preparations have been used clinically in the belief that therapeutic effects were being secured from accompanying hormones.

But there appears to be no conclusive evidence of either a definite localization of the hypothetic hormone or of the specific effect claimed for the commercial ovarian extracts in wide clinical use. The recent

6. McCollum, E. V.; Simmonds, Nina; Shipley, P. G., and Park, E. A.: Studies on Experimental Rickets, VII, The Production of Rickets by Diets Low in Phosphorus and Fat-Soluble A, J. Biol. Chem. **48**: 507 (Aug.) 1921.

7. Salmon, William: The Family Dictionary, London, 1705.

* From the Departments of Anatomy, Biologic Chemistry and Surgery, Washington University Medical School, St. Louis, with the assistance of Byron F. Francis, Harry V. Gibson, Leroy L. Robertson, Cleon E. Colgate and William B. Kountz.

1. Marshall, F. H. A.: The Physiology of Reproduction, 1922, p. 320.
2. Fraenkel, Ludwig: Die Function des Corpus Luteum, Arch. f. Gynäk. **68**: 438, 1903.
3. Marshall and Runciman: On the Ovarian Factor Concerned in the Recurrence of the Oestrous Cycle, J. Physiol. **49**: 17 (Dec. 22) 1914.

reviews of Frank [4] and of Novak [5] may be cited to illustrate the well founded skepticism concerning the activity of commercial preparations. The reason for this distrust is the absence of any suitable test for the activity of ovarian extracts. Without a practicable test, the search for any hormone is obviously a very haphazard and uncertain task. With a suitable test it has been relatively easy to establish the seat of production of the ovarian hormone of estrus, to observe its effect on animals, and to study methods for its extraction and preliminary purification.

THE TEST METHOD

In 1917, Stockard and Papanicolaou [6] described an exact method for following estrual changes in the living guinea-pig. This method has been applied to the correlation of estrual phenomena in the genital organs of the rat [7] and the mouse.[8] During the anabolic phase of the cycle in these rodents, the epithelium of the vagina grows to a considerable thickness and a cornified layer similar to that in the epidermis develops. During the catabolic phase, the outer layers of this epithelium degenerate and are removed by leukocytic action. These changes provide a definite succession of cell types in the vaginal lumen, each one characteristic of a certain phase of the cycle. Thus the microscopic examination of vaginal smears is a reliable indicator of the estrual condition of the living animal.

Since these cyclic phenomena in the genital tract cease after double ovariectomy,[9] their induction by the injection of ovarian extracts constitutes a positive test for the efficiency of those extracts. The estrual cycle of the mouse and the rat is of four to six days' duration, and this short period makes them especially suitable for test animals.

LOCALIZATION OF THE HORMONE OF ESTRUS

From the results of an earlier investigation by one of us [8] on the estrual cycle in the mouse, it was concluded that the corpora lutea of estrus [10] and the interstitial tissue could be excluded as possible sources of the hormone of estrus and that this was produced in the follicles. Among earlier workers, Frank [4] reported very briefly inducing uterine hyperemia in two normal virgin rabbits by the injection of liquor folliculi. Although his results appear to be positive, the ovaries were not removed from his test animals, and one cannot be quite sure that the changes described were not caused by the activity of the ovaries. Previously, Frank and several writers mentioned by him (especially Hermann [11]) had reported similar results from the injection of material obtained from the corpus luteum and the placenta (Hermann spayed some of his test animals). Consequently, this test does not seem to be specific for the hormone of estrus.

4. Frank, R. T.: The Ovary and the Endocrinologist, J. A. M. A. **78**: 181 (Jan. 21) 1922.
5. Novak, Emil: An Appraisal of Ovarian Therapy, Endocrinology **6**: 599 (Sept.) 1922.
6. Stockard, C. R., and Papanicolaou, G. N.: Existence of a Typical Oestrous Cycle in the Guinea-Pig, with a Study of Its Histological and Physiological Changes, Am. J. Anat. **22**: 225 (Sept.) 1917.
7. Long, J. A., and Evans, H. M.: The Oestrous Cycle in the Rat and Its Associated Phenomena, Mem. Univ. California **6**: 1922.
8. Allen, Edgar: The Oestrous Cycle in the Mouse, Am. J. Anat. **30**: 297 (May) 1922; Racial and Familial Cyclic Inheritance and Other Evidence from the Mouse Concerning the Cause of Oestrous Phenomena, Am. J. Anat., to be published.
9. This has recently been checked in the rat (Long and Evans, Footnote 7) and in the mouse (Allen, Footnote 8).
10. The distinction is clearly drawn here between the corpora lutea of estrus and those of pregnancy. Only nonpregnant animals were referred to in the earlier paper.
11. Hermann, E.: Ueber eine wirksame Substanz im Eierstocke und in der Placenta, Monatschr. f. Geburtsh. u. Gynäk. **41**: 1 (Jan.) 1915.

PRELIMINARY EXPERIMENTS

Our first experiments were carried out with liquor folliculi from hog ovaries, which are a readily available source for the isolation of the contents of the follicles. Since the estrual cycle in the sow is of three weeks' duration,[12] and large follicles are present in the ovaries during only a part of this time, only one in every three or four ovaries is a profitable source of liquor folliculi.[13] A selection is made of ovaries containing follicles larger than 5 mm. in diameter. The follicular contents (liquor folliculi, follicle cells and occasional ova) are aspirated through a hypodermic needle into a suction bottle. At least 100 c.c. of readily workable material can be obtained from one pound of carefully selected ovaries.

In the first series of experiments, nine mice and rats were prepared for use as test animals by double ovariectomy. A week later they were given three injections at intervals of five hours of liquor folliculi aspirated from large follicles. These injections were made subcutaneously with the expectation that slow absorption from this region would be more closely comparable to the secretion of the hormone in normal animals. From forty to forty-eight hours after the first injection, all of the animals receiving liquor folliculi were in full estrus, as determined by microscopic examination of the smears. As a check on these results, the animals were killed and the uterus and vagina of each studied histologically. They were in a typical estrual condition as described for these rodents.[14]

Since the liquor aspirated from the follicles contains follicle cells and some ova, tests were next made with centrifugated liquor and Berkefeldt filtrate. Positive results in these experiments showed that the hormone is extracellular and present in the liquor folliculi. Realizing that liquor folliculi with its large protein content would be unsuitable for continued injections into patients and test animals, we began the preparation of extracts.

METHOD OF EXTRACTION

Fresh liquor folliculi is added to a double volume of 95 per cent. alcohol and allowed to stand until the proteins are coagulated (about twenty-four hours). The coagulum is filtered off. The filtrate, which is practically protein free, contains the active constituent. Further extraction of the coagulated protein with boiling alcohol yields an additional amount of the hormone. The alcohol is distilled off (the hormone being thermostable), and the residual aqueous suspension extracted with ether. The ether extract is evaporated, and the solids are dried in a vacuum desiccator. The residue is dissolved in a minimal quantity of ether, and a double volume of acetone is added. To insure completeness of separation, the solution and precipitation are repeated twice. The precipitate, which consists of lipoids (lecithin and cephalin), shows no activity in the test animal. The combined filtrates are evaporated, and the residue is dried. By boiling out the solid material with 95 per cent. alcohol, the active substance is obtained free from protein but contaminated with a little fatty material. The alcohol is evaporated off, and the minute

12. Corner, G. W.: The Ovarian Cycle in Swine, Science **53**: 423 (April 29) 1921.
13. This may be one reason for the conflicting reports of the therapeutic value of commercial extracts from ovaries unselected as to follicular development.
14. Stockard and Papanicolaou (Footnote 6). Long and Evans (Footnote 7). Allen (Footnote 8).

yield of oily residue taken up in purified corn oil or emulsified in dilute sodium carbonate. This constitutes a partially purified preparation of this follicular hormone, the subcutaneous injection of which produces no ill effects in our test animals.

A few points of chemical interest may be added. This hormone seems to be stable toward dilute alkali when boiled with it in alcoholic solution. The active substance resembles the neutral fats somewhat in that it is soluble in alcohol, acetone, chloroform and ether and it may be extracted from aqueous mediums by both ether and chloroform. Strongly acidic or basic groups seem to be absent, since it can be extracted with ether from either dilute acid or alkali. Most of our better preparations fail to give the biuret reaction, thus indicating the absence of protein and polypeptids.

ACTION IN TEST ANIMALS

Further animal experiments have confirmed our early results, and we are now in a position to make the following preliminary announcement concerning this follicular hormone and its action:

1. From one to three injections of this extract into spayed animals produce typical estrual hyperemia, growth, and hypersecretion in the genital tract and growth in the mammary glands. These changes include thickening and cornification in the vaginal walls, which constitutes a test easily followed in the living animal. After a time the effect of these injections wears off and typical degenerative changes set in. This hormone seems to be an efficient substitute for the endocrine function of the ovaries of the nonpregnant animal. It is probable that its alternate presence and absence in the circulation is sufficient to explain the mechanism of estrual phenomena in the genital tract in the absence of pregnancy.

2. While these spayed animals are in a condition of artificially induced estrus, they can be mated with normal vigorous males. They experience typical mating instincts, the spayed females taking the initiative in the courtship and showing no aversion to advances by the male. Successful copulation occurs, followed, as in normal animals, by the formation of typical vaginal plugs. Since these animals will copulate only when in estrus, the conclusion seems justified that this follicular hormone is the cause of estrual or mating instincts.

3. Several injections of active extracts were made into animals immediately after weaning, at an age of from 3 to 4 weeks. They became sexually mature [15] in from two to four days, at least twenty to forty days before the usual time of the attainment of puberty. These experiments were controlled by uninjected litter sisters which did not prematurely attain to puberty. From these experiments it is concluded that the attainment of sexual maturity, involving possibly the development of the secondary sexual characters, is brought about by a hormone from the follicles, although the consummation of their maturation is in some way restrained.[16]

4. So far we have obtained only negative results from our extracts of corpora lutea and commercial extracts of ovaries, corpora lutea, and ovarian residue from three of the largest firms manufacturing biologic products.

5. It is probable that this hormone is produced under the influence of maturing ova by their follicle cells. Since it is obtained from the ovaries of hogs and cattle and produces results in the mouse and rat, it is not species specific. It is probably produced in all ovaries as their ova mature, and therefore is probably common to all female animals.

The details of the experimental evidence for the foregoing statements will be published at an early date. Tests of the therapeutic value of this hormone are now being carried on.

15. The attainment of sexual maturity is defined here as the opening of the vaginal orifice at the appearance of the first estrus.

16. Allen, Edgar: Ovogenesis During Sexual Maturity, Am. J. Anat. 31: 441 (May) 1923. It is tentatively suggested that the development of the follicles in the immature ovary is restrained by the nutritional demands of rapid prepubertal body growth which limit the amount of nutriment necessary for the full development of the follicles and their contained ova.

GRADUAL EMPTYING OF THE OVERDISTENDED BLADDER

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It is generally recognized that the removal of urine from a chronically overdistended bladder is often followed by untoward symptoms, or death. If the bladder is emptied rapidly and completely at one time, the sudden reduction of the intravesical pressure results in immediate congestion throughout the urinary tract, with resulting edema and hemorrhage, which may be so severe as completely to suppress renal function by increasing the pressure within the renal capsule to a point incompatible with glomerular and tubular function. Even though the process may not go on to complete suppression of urine, the congestion and edema make the urinary tract a fertile field for infection, a complication which is borne very poorly by this class of patients, and is the undoubted cause of many of the fatalities.

O'Conor [1] has shown that, coincident with emptying the bladder of residual urine, there is a decided fall in blood pressure. Thus, to the difficulty of filtering urine through a congested renal parenchyma is added the lowering of the pressure behind this filter, still further embarrassing the mechanism of excretion. O'Conor found that this drop in blood pressure reached its lowest point in 75 per cent. of his patients at the end of forty-eight hours.

If a procedure could be adopted that would delay this period of falling blood pressure, and so prolong it that the new level was not reached for several days, instead of in the first forty-eight hours, it should greatly aid in keeping at a maximum the amount of urine excreted during the period when the urinary tract is adjusting itself to the new conditions of pressure. In 1920, Von Zwalenburg [2] described such a method of emptying overdistended bladders without at any time reducing the intravesical pressure suddenly. This method has since been used at the Mayo Clinic in the treatment of eighty-three patients. The results in twenty of these have previously been reported.[3]

1. O'Conor, V. J.: Observations on the Blood Pressure in Cases of Prostatic Obstruction, Arch. Surg. 1: 359-367 (Sept.) 1920.

2. Van Zwalenburg, Cornelius: Emptying a Chronically Distended Bladder, J. A. M. A. 75: 1711-1712 (Dec. 18) 1920.

3. Foulds, G. S.: The Gradual Withdrawal of Residual Urine from the Chronically Overdistended Bladder, J. Urol. 5: 453-459 (May) 1921.

METHOD

A soft rubber catheter is introduced into the bladder and fastened in place; a clamp is attached to the distal end to prevent the loss of any urine. The catheter is then connected to a rubber tube filled with water, which leads through a simple manometer to a receptacle, usually an ordinary enema can, placed about 6 feet above the floor. The system being completed (Fig. 1), the clamp on the catheter is released and the pressure in the bladder read on the manometer, after which the receptacle is lowered so that the outlet of the system is about 3 cm. above the level of the fluid in the manometer. By this arrangement, the urine will just trickle over, on deep inspiration, and the entire urinary tract will continue to function under its usual pressure.

Sudden edema and congestion incident to the removal of even a small amount of urine has not occurred. After rest in bed it will be noted that the original bladder pressure, as registered on the manometer, gradually falls, and the level of the receptacle may then be suitably lowered, care being taken to keep the receptacle a few centimeters higher than the reading on the manometer, in order that the urinary tract may at all times be working against a continuous, though lowering pressure. By this method, the time of emptying the bladder may vary from two days to a week; usually, however, it takes from three to five days. The blood pressure, instead of falling suddenly, decreases more gradually,

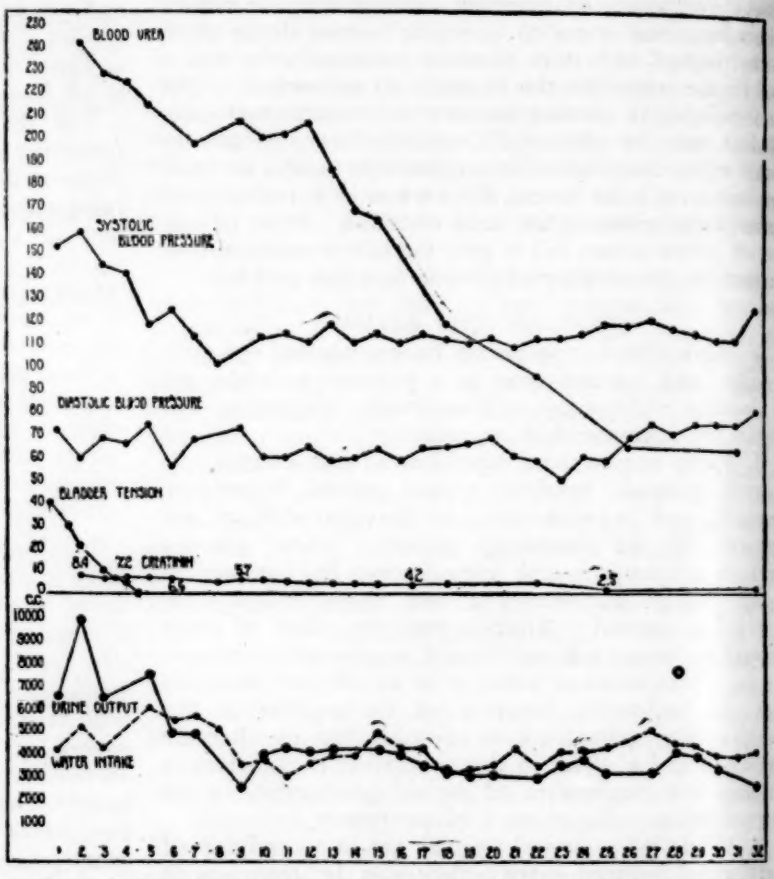

Fig. 2.—Bedside chart showing time consumed in lowering of bladder tension (five days), and drop in blood pressure (eight days).

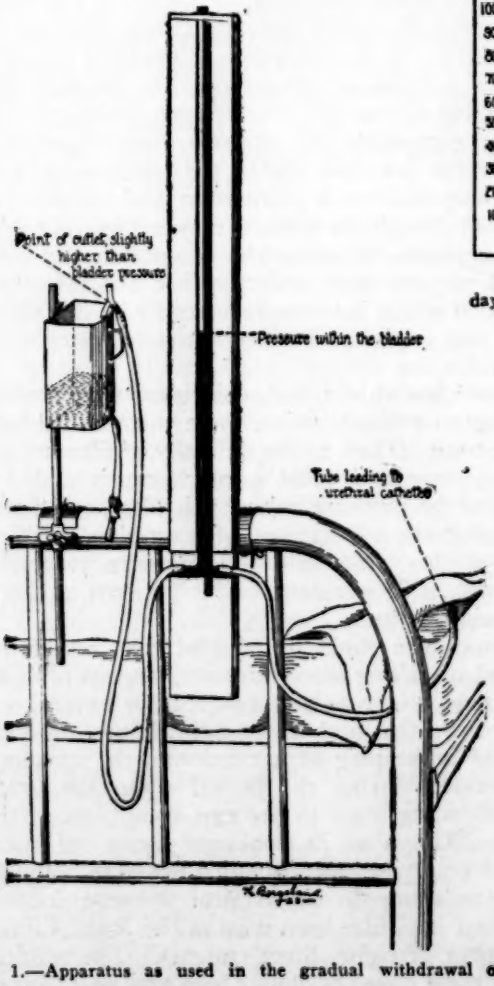

Fig. 1.—Apparatus as used in the gradual withdrawal of residual urine.

and edema and congestion of the urinary tract are reduced to a minimum.

Seventy-one of the eighty-three patients treated by this method had benign hypertrophy of the prostate; eleven had carcinoma of the prostate, and one had a urethral stricture of long standing. The oldest patient was 88 years, and the youngest 48 (the stricture case); the average age was 57 years. Almost without exception, the patients were in very poor general condition; many were definitely uremic on admission to the hospital. The majority had had definite retention and overflow for at least two or three months, and several for more than two years. In many instances it was difficult to get a clear history to indicate the duration of the urinary retention.

In all of the patients, the bladder was distended sufficiently to be demonstrated by percussion or palpation above the level of the symphysis pubis. In forty-six it extended as a typical pyriform tumor reaching the level of the umbilicus.

The renal function of the patients was generally very poor; the specific gravity of the urine was low, averaging 1.012; the average output of phenolsulphonephthalein in two hours was 10.59 per cent., and the average blood urea 95.85 mg. for each 100 c.c. of blood. The creatinin estimation varied between 1.5 and 8.7 mg. for each 100 c.c. of blood, the usual amount being from 2 to 4 mg.

RESULTS

Careful records were kept of the diastolic and systolic blood pressure, the intake and output of fluids, and the intravesical tension. Blood urea and creatinin estimations were at first made daily; later, twice a week. These data have been charted, and typical charts are reproduced (Figs. 2 and 3). The charts show that the critical period with these patients is at the time the blood pressure has reached its lowest point. The longer this is delayed, the greater the amount of urine excreted, and the more rapid the fall in blood urea content. Thus, if at the period of minimal blood pressure the urine output has also markedly declined and the urea is rising, the prognosis is very grave. If, however, with the falling blood pressure, the urine output is sustained and the urea diminishing, then the prognosis is good, irrespective of the amount of urea.

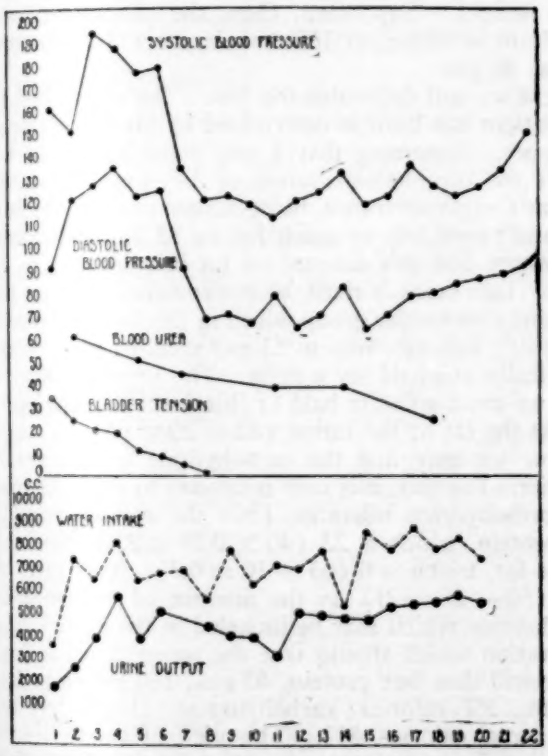

Fig. 3.—Bedside chart showing time consumed in lowering bladder tension (eight days), and drop in blood pressure (eight days).

The intravesical tension varies greatly in different patients, the lowest tension being 10 cm. and the highest 50 cm.; the usual readings are between 20 and 30 cm. If the retention is chronic, the tension is usually average or low; if acute, it is generally higher.

The reaction to catheterization and emptying the bladder was usually very slight. Occasionally there was a slight fever to 100 or 101, rarely higher, or associated with chills. After the bladder was emptied, it was kept empty by an indwelling catheter, which was usually well borne. The progress of the patients was generally very satisfactory, and the usual preoperative procedures were carried out as in the less severe cases. Renal function improved in almost all cases; the average phenolsulphonephthalein output in two hours increased from 10.59 to 40.42 per cent. The blood urea average fell from 95.85 to 52 mg. for each 100 c.c. of blood. Eleven patients had hematuria; four of these had a history of hematuria, or were bleeding before manipulation was undertaken, and one had a carcinoma of the bladder, hypertrophied prostate, and retention of urine.

Primary one-stage prostatectomies were performed on twenty-eight of the eighty-three patients, and two-stage prostatectomies on fourteen, making forty-two successful prostatectomies. Suprapubic drainage operations were performed on nine patients; in two instances the stab drainage was done primarily and the method applied directly to the suprapubic drainage tube. Twenty-six patients were sent home with indwelling catheters, because they were considered poor risks for surgery, or because they had malignant prostates. Some of these will probably be able to have prostatectomies later. Two patients are still in the hospital. Four patients died: two immediately on the emptying of the bladder, one from peritonitis following an acute ruptured appendix, and one from advanced carcinoma of the prostate, metastasis and prostatic abscess. Therefore, only two patients (2.5 per cent.) died from the effects of emptying the overdistended bladder. We believe that the 2.5 per cent. mortality in this type of case indicates the effectiveness of the method, and warrants its more universal adoption.

A SIMPLE METHOD OF APPROXIMATING THE PROPER RATION FOR A DIABETIC PATIENT

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The difficulty in arranging the ration, or bill of fare, in a new case of diabetes is to know where to begin. The ordinary "cut and try" method often involves a great waste of time and may work to the serious disadvantage of the patient. This method is clumsy and unscientific, and is about as reasonable as would be the action of a tailor if, instead of measuring his customer for a coat, he should make a guess as to the dimension of the garment, make and try it on, and if he found it a misfit, make another, and if he found this a misfit, proceed to make still another, so continuing until by gradual approximations a proper fit might in time be attained, and then charging up to the patient the total cost of the time and material employed in wasteful experimentation.

All competent internists who have had much to do with the treatment of diabetic patients by modern methods have abandoned the routine, drastic starvation of the Guelpa-Allen method. It seems to be a general practice, however, to begin with the average patient by putting him on a very low ration and then working up until the limit of carbohydrate tolerance is reached. In addition to loss of time, this method may involve unnecessary loss of flesh and sometimes of strength and vital resistance, which it may be difficult, if not impossible, to regain, and so should be limited in use to cases in which the carbohydrate tolerance is so low as to make it necessary.

By the use of mathematical formulas (Woodyatt) or computations by the aid of tables (Holmes), a suitable ration may be arrived at when the carbohydrate tolerance is known, this determining factor being ascertained by simply subtracting the urinary sugar from the total carbohydrate of the diet, taking account of the carbohydrate content of the protein and the fat, together with the starch, sugar and dextrin. While accurate and

scientific and an immense advantage over the "cut and try" methods in common vogue, this method involves so much figuring and reference to tables that a very busy internist who has to deal with a considerable number of diabetic patients will be tempted, when crowded for time, to lapse into the old empiric way of guessing at the patient's requirement instead of making a close approximation to his needs by the application of a more exact and scientific method.

I have prepared a table by the use of which the laborious calculations referred to may be saved. The table presents several hundred daily rations which have been calculated for different degrees of sugar tolerance, from 200 gm. to 10 gm., and for different quantities of protein varying from 80 gm. to 10 gm.

The basis of the calculations by which the figures given in the table have been arrived at is to be found in the following well known facts which have been established by modern metabolism studies:

1. One gram of carbohydrate will suffice for the burning of from 1⅔ to 3 or 4 gm. of fat. The lower figure is very conservative.
2. Protein is ketogenic to the extent of 46 per cent. of its weight, the equivalent of 51 per cent. of fat.
3. Protein, when metabolized, yields 58 per cent. of its weight of carbohydrate.
4. Fat, when metabolized, yields 10 per cent. of its weight of carbohydrate (glycerol).

In arranging a diet for a diabetic patient, first consideration must be given to the amount of protein, which should be sufficient to meet the needs of the body without loading it with an excess. Sherman has shown that 0.5 gm. of protein per kilogram of body weight (1 calory per pound) is sufficient to meet all physiologic needs. Newburgh finds that 0.66 gm. per kilogram of body weight (1.2 calories per pound) is ample. Woodyatt employs 1 gm. per kilogram of body weight, and some practitioners recommend a still higher intake of protein. All are agreed, however, that excess of protein is injurious in diabetes, a fact pointed out by von Noorden many years ago. Since Folin has shown that all surplus protein is directly eliminated by the kidneys after having been converted into urea by the liver without making any useful contribution to the body needs, I consider it wise to keep the protein intake as low as compatible with the satisfaction of physiologic requirements, and hence accept as a good basis two-thirds gram of protein for each kilogram of body weight, or approximately one-third gram of protein for each pound of body weight. This amount is found ample, provided the proteins employed are of high quality.

By the aid of the foregoing data, with the patient's sugar tolerance known it is easy to calculate at once a diet that will supply such quantities of protein, carbohydrate and fat as the patient should be able to utilize without the appearance of sugar in the urine and without the production of acidosis.

We first ascertain the patient's sugar tolerance. To do this, it is only necessary to know exactly what he eats during twenty-four hours and how much, and the amount of sugar in the urine of twenty-four hours. Let us suppose, for example, that the patient's diet contains: protein, 70 gm. (2⅗ ounces), 280 calories; fats, 165 gm. (5½ ounces), 1,485 calories; carbohydrates, 62 gm. (2 ounces), 248 calories; total calories, 2,013. Examination of the urine shows 70 gm. of sugar.

To find the carbohydrate tolerance we first find the total amount of carbohydrate in his diet. This is not fully represented by the amount of starch and sugar eaten. When metabolized in the body, the protein yields 58 per cent.; carbohydrate and the fats, 10 per cent. The total sugar of the diet, then, will be approximately 41 gm. from the protein ($70 \times 0.58 = 40.6$); 16.5 gm. from the fat ($165 \div 10 = 16.5$), and 62 carbohydrate—in all, in round numbers, 120 gm. ($41 + 16.5 + 62 = 119.5$). If from this we subtract the 70 gm. of urinary sugar, we have left 50 gm. as the sugar tolerance of the patient.

Knowing the sugar tolerance, we can now proceed to formulate at once a dietary which the patient should be able to utilize without the appearance of sugar in the urine. First, we will fix the protein at such a point as will be sufficient to meet the patient's actual requirements, or two-thirds gm. per kilogram of his normal body weight. Supposing, then, the patient's normal weight to be 60 kg., or 132 pounds, we will fix the protein at 40 gm.

Next we will determine the fats. The amount of fat the patient can burn is determined by his carbohydrate tolerance. Assuming that 1 gm. of carbohydrate will insure the complete oxidation of 1⅔ gm. of fat, the patient's sugar tolerance, being 50 gm., can easily burn one and two-thirds as much fat, or 83 gm. However, we cannot add this amount of fat in substance to his bill of fare since it must be remembered that protein contains a molecular group which in metabolism behaves like fat. This amounts to 51 per cent. of the protein, practically one-half its weight. The protein being 40 gm., we must subtract half of this from 83, leaving 63 gm. as the fat of the ration ($83 - 20 = 63$).

Now we may find the carbohydrate constituent of the diet. For this, it is only necessary to subtract from the carbohydrate tolerance (50) the carbohydrate of the protein, which is 23 ($40 \times 0.58 = 23.2$) and that of the fat, which is 6 ($63 \div 10 = 6.3$). This gives 21 gm. ($50 - 29 = 21$) as the amount of carbohydrate in substance which may be included in the day's ration. The ration which should free the patient's urine from sugar will thus be: protein, 40 gm., 160 calories; fats, 63 gm., 567 calories; carbohydrates, 21 gm., 84 calories; total calories, 811. This diet, of course, is not sufficient for a maintenance ration, as it affords little more than half the energy required by the basal metabolism of a man weighing 60 kg. It will free the urine of sugar, however, and will give the pancreas relief from the overwork to which it has been subjected, without the reducing fast required by the Guelpa-Allen method, and may be increased by the addition of fat and carbohydrate through the use of insulin, adding about 2 gm. of carbohydrate for each unit of insulin given.

A RATION TABLE WHICH INSURES MATHEMATICAL PRECISION WITHOUT THE USE OF FORMULAS

As a labor-saving device, I have prepared the accompanying table, which gives a series of several hundred rations based on the protein intake and the carbohydrate tolerance. The use of this table will permit the selection of a suitable balanced ration without the necessity of making the calculations detailed above, thus saving considerable time, a matter of serious moment when cases are awaiting attention.

First of all, the patient's sugar tolerance must be found. This is easily done: From the table a ration is selected which will supply about the number of

calories required by the basal metabolism of the patient. For a patient 5 feet 4 inches (162.6 cm.) high, weighing 60 kg. (132 pounds), this will be about 150 calories (Du Bois). Taking the patient's protein requirement as 40 gm. (two-thirds of his weight in kilograms), we locate on the chart Ration 40-90 as furnishing the requisite number of calories. This ration supplies: protein, 40 gm.; fat, 130 gm.; carbohydrate, 53 gm.; calories, 1,542. It is only necessary to put the patient on this ration for twenty-four hours and determine the urinary sugar and subtract this from the known carbohydrate content of the ration. Supposing the urinary sugar for twenty-four hours to be 40 gm., and subtracting this from 90, we have 50 gm. as the patient's sugar tolerance.

Referring again to the table, we find in the column under 50, Ration 40-50: protein, 40 gm.; fat, 63 gm.; carbohydrate, 21 gm.; calories, 811. On this ration, the patient should be sugar free. Thus the use of the table avoids the necessity for time-consuming calculations and the appropriate initial ration for any degree of sugar tolerance may be quickly arrived at.

Having found the ration on which the patient is sugar free, one next has to raise the energy value of the diet to the actual body requirement as rapidly as possible. Here is where insulin comes in as a time-saving and life-saving remedy of priceless value. If the patient is given 5 units of insulin, his sugar tolerance will be increased 10 or 11 gm. Following the table, we shall find the appropriate ration in the 60 column on the 40 protein line, Ration 40-60. This raises the calory intake to 1,001, an increase of 190 calories. The addition of another 5 units of insulin raises the ration to 40-70, with 1,177 calories. Thus, within a few days the ration may be brought up to the patient's full basal requirement, say 1,542 calories, which is provided by Ration 40-90, with 20 units of insulin. From this point on the fats need not be increased. The protein, of course, remains fixed at 40 gm.

Carbohydrate Tolerance.....		10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
Protein 80	Fats.....	...	...	...	...	...	60	77	94	110	127	144	160	177	194	210	227	244	260	277	293
	Carbohydrates..	...	...	...	...	...	8	16	25	33	41	50	58	66	75	83	91	100	108	116	125
	Calories.....	...	...	...	...	...	802	1,077	1,266	1,442	1,627	1,816	1,992	2,177	2,366	2,542	2,727	2,916	3,092	3,277	3,457
Protein 75	Fats.....	...	...	...	...	47	63	80	97	113	130	147	163	180	197	213	230	247	263	280	296
	Carbohydrates..	...	...	...	...	2	10	18	27	35	43	52	60	68	77	85	93	102	110	118	127
	Calories.....	...	...	...	...	731	907	1,092	1,281	1,457	1,642	1,831	2,007	2,192	2,381	2,557	2,742	2,931	3,107	3,292	3,472
Protein 70	Fats.....	...	...	...	...	49	65	82	99	115	132	149	165	182	199	215	232	249	265	282	298
	Carbohydrates..	...	...	...	...	4	12	20	29	37	45	54	62	70	79	87	95	104	112	120	129
	Calories.....	...	...	...	...	737	913	1,038	1,287	1,463	1,648	1,837	2,013	2,198	2,387	2,563	2,748	2,937	3,113	3,298	3,478
Protein 65	Fats.....	...	...	...	...	52	68	85	102	118	135	152	168	185	201	217	234	251	268	285	301
	Carbohydrates..	...	...	...	...	7	15	23	32	40	48	57	65	73	82	90	98	107	115	123	132
	Calories.....	...	...	...	...	756	932	1,117	1,306	1,482	1,667	1,852	2,028	2,213	2,393	2,569	2,754	2,943	3,132	3,317	3,497
Protein 60	Fats.....	...	...	...	37	54	70	87	104	120	136	154	170	187	203	219	236	253	270	287	
	Carbohydrates..	...	...	...	1	10	18	26	35	43	51	60	68	76	85	93	101	109	118	126	
	Calories.....	...	...	...	577	758	938	1,123	1,312	1,488	1,668	1,866	2,042	2,227	2,407	2,583	2,768	2,963	3,142	3,327	
Protein 55	Fats.....	...	...	...	39	56	73	90	106	123	139	156	172	189	205	221	238	255	272		
	Carbohydrates..	...	...	...	4	12	21	29	37	45	53	62	70	79	88	96	104	112	121		
	Calories.....	...	...	...	587	772	961	1,146	1,322	1,507	1,683	1,872	2,048	2,237	2,417	2,593	2,778	2,963	3,152		
Protein 50	Fats.....	...	...	...	42	59	76	92	108	124	141	158	175	192	208	224	241	258			
	Carbohydrates..	...	...	...	7	15	23	31	40	48	56	64	73	81	90	98	107	115			
	Calories.....	...	...	...	606	791	976	1,152	1,332	1,508	1,689	1,878	2,067	2,252	2,432	2,608	2,797	2,982			
Protein 45	Fats.....	...	...	28	44	61	78	94	111	127	144	160	177	193	210	226	243				
	Carbohydrates..	...	...	1	10	18	26	34	42	50	58	66	75	84	93	101	110				
	Calories.....	...	...	436	616	801	996	1,162	1,347	1,523	1,708	1,884	2,073	2,253	2,442	2,618	2,807				
Protein 40	Fats.....	...	...	30	47	63	81	97	113	130	146	163	180	196	213	229					
	Carbohydrates..	...	...	4	12	21	28	36	45	53	61	69	78	86	96	104					
	Calories.....	...	...	446	631	811	1,001	1,177	1,357	1,542	1,718	1,903	2,092	2,268	2,461	2,637					
Protein 35	Fats.....	...	...	33	49	66	83	99	116	133	149	166	183	199	215						
	Carbohydrates..	...	...	7	15	23	31	39	48	56	64	72	81	89	99						
	Calories.....	...	...	465	641	826	1,011	1,187	1,372	1,557	1,733	1,922	2,111	2,287	2,471						
Protein 30	Fats.....	...	18	35	52	69	85	101	118	135	152	168	185	202							
	Carbohydrates..	...	1	9	18	26	34	42	51	59	67	75	84	92							
	Calories.....	...	286	471	660	845	1,021	1,197	1,386	1,571	1,756	1,932	2,121	2,306							
Protein 25	Fats.....	...	20	37	54	71	87	103	120	137	154	171	187								
	Carbohydrates..	...	4	12	21	29	37	45	53	61	70	78	86								
	Calories.....	...	296	481	670	855	1,031	1,207	1,392	1,577	1,766	1,951	2,127								
Protein 20	Fats.....	...	23	40	57	73	90	106	123	140	156	174									
	Carbohydrates..	...	6	14	23	31	39	47	56	64	73	81									
	Calories.....	...	311	496	685	861	1,046	1,222	1,411	1,596	1,776	1,970									
Protein 15	Fats.....	8	25	42	59	76	92	108	125	142	159										
	Carbohydrates..	0	8	16	25	33	41	49	58	66	75										
	Calories.....	132	317	502	691	876	1,052	1,228	1,417	1,602	1,791										
Protein 10	Fats.....	11	28	45	62	79	95	111	128	145											
	Carbohydrates..	3	11	19	28	36	44	52	61	69											
	Calories.....	151	336	521	710	895	1,071	1,247	1,436	1,621											

Rations for diabetic patients balanced for sugar tolerance and acidosis.

We have now found a solid scientific basis on which to build the patient's daily ration and bills of fare. It is now only necessary to increase the carbohydrate intake by the further daily increase of the dose of insulin by 5 units. For every 5 units of insulin, 10 or 11 gm. of carbohydrate may be added to the ration. With 40 units of insulin, the ration would become: protein, 40 gm.; fats, 130 gm.; carbohydrate, 93 gm.; calories, 1,702.

As there is often a marked gain in sugar tolerance under the use of insulin with a scientifically adjusted dietary, it is wise to lessen the insulin or to omit it alto-

gether for a day, after some weeks, and determine anew the sugar tolerance. This determination may be used as a basis for a new ration-building process which will be carried out as before.

In very bad cases, with a sugar tolerance as low as 20 gm., for example, the protein must necessarily be very low, not more than 20 or 25 gm., and sometimes as low as 10 or 15 gm. for a few days at the start. In these cases the table renders especially valuable service, as will be shown by an example. Supposing the carbohydrate tolerance is found to be 10. The initial ration selected will be 10-10: protein, 10 gm.; fats, 11 gm.; carbohydrate, 3 gm.; calories, 151. This is a starvation ration and must be increased as rapidly as possible. It is first of all important to increase the protein to the fundamental requirement. Giving 5 units of insulin will raise the tolerance to 20, which will enable the patient to take Ration 30-20: protein, 30 gm.; fat, 18 gm.; carbohydrate, 1 gm.; calories, 286. This ration affords nearly twice as many calories as the former and gives 30 gm. of protein. Adding another 5 units to the total daily dose of insulin will raise the tolerance to 30 and give the 60 kg. patient 40 gm. of protein, which is sufficient. The complete ration will now be (40-30): protein, 40 gm.; fats, 30 gm.; carbohydrate, 4 gm.; calories, 446.

The protein of the ration is now fixed, and we may begin at once to build up the ration by daily additions of insulin as before until the basal requirement is reached, then gradually adding carbohydrate until the normal diet is approached as nearly as the patient's carbohydrate tolerance will permit.

If at any time sugar appears in the urine, a new determination of the sugar tolerance is made and a new ration selected.

The rations shown in the table being in physiologic balance under the given conditions of protein intake and carbohydrate tolerance, they may be used as a check on the daily bills of fare, and will quickly show in what direction modification is required.

Suppose, for example, the patient's carbohydrate tolerance is found to be 50 and the protein intake 60. Reference to the table will show that such a patient should be sugar free with Ration 60-50, consisting of: protein, 60 gm.; fat, 54 gm.; carbohydrate, 10 gm.; calories, 758.

If, instead of this ration, the patient is receiving, say: protein, 60 gm.; fat, 70 gm.; carbohydrate, 20 gm., by comparison it will be seen at once where the trouble is (excess of both fat and carbohydrate), and if the patient is put on the diet indicated in the table, he will almost certainly at once become sugar free. Thus if the table is used, it may be seen at once whether the pancreas is being subjected to a strain likely to injure it or whether, on the other hand, there is a wider margin between the sugar tolerance and the actual intake of carbohydrate than is necessary.

By a little practice the table may be used in such a way as greatly to facilitate the fixing of the initial diet and also in the daily adjustment of the diet which changes in the patient's carbohydrate tolerance may necessitate. The table will be found useful also in checking up the patient. When his tolerance is known and a ration has been selected for him from the table, the appearance of sugar in the urine will probably mean a surreptitious intake of carbohydrate in some form; or, the failure of the ration selected from the table to make the urine sugar free may indicate that the patient failed to save the whole amount of urine passed, so that too large a figure has been used for the carbohydrate tolerance.

As an aid to the use of the table, I have had arranged a series of corresponding, daily bills of fare by the use of which the adjustment of the diet for any case may be very quickly accomplished and without calculation of calories.

AN EPIDEMIC OF MILD FEVER OF UNKNOWN NATURE *

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Since June 6, 1923, sixteen patients admitted to the Presbyterian Hospital, New York, have presented symptoms and courses so similar to one another, and yet not corresponding to any picture found by us in the literature, that we have come to regard them as representing a new and distinct clinical entity. For the purpose of calling attention to the condition and learning, if possible, the opinion of others who may have seen similar cases, we are reporting in brief our experience.

The characteristic features of the malady as we have seen it, are: (1) occurrence in the young; (2) sudden onset; (3) pain referred to the chest or upper abdomen; (4) a rather high fever with few other general constitutional symptoms; (5) a disappearance of the pain and fever within twenty-four hours, with frequent recurrence on the third or fourth day after the onset; (6) a speedy and uncomplicated recovery.

A TYPICAL HISTORY

A. W., a previously healthy school girl, aged 16, one evening developed a sharp pain in the epigastrium and lower anterior chest. The pain was aggravated by walking or deep breathing. She had no cough or symptoms referable to the upper respiratory tract, and no urinary or gastro-intestinal disturbances. She awoke next morning feeling feverish and generally miserable, and the pain was worse. That afternoon she was admitted to the hospital. The temperature curve is reproduced in Chart 1. The patient was normally developed, and cried out with pain. Her face was flushed and the tongue was coated, but nothing was found to explain the symptoms. Next day she was free from fever and very comfortable. But after thirty-six hours, the temperature rose to 103.4; at this time she had slight pain in the lower anterior right side of the chest. She developed a herpetiform eruption on the nose. On the fifth day her temperature became normal and remained so. Since then, over a month ago, she has been entirely free from symptoms.

Blood count on admission showed 9,300 leukocytes with 87 per cent. polymorphonuclears; during the second rise in temperature, the leukocytes were 5,300, with 90 per cent. polymorphonuclears. The blood culture was negative, and roentgen-ray examination of the chest showed no pathologic changes. The red blood cells were found in one centrifugated specimen of urine; these were not found in subsequent examinations.

OBSERVATIONS

Age and Sex Incidence.—The average age of the patients in our small series was 13 years, the extremes being 4 and 32. The sexes were about equally represented.

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Onset.—This was sudden in every case; usually the patients were able to recall the precise time of the beginning of the pain, which was, without exception, the initial symptom. Chill, vomiting and headache may be present, as is common at the onset of many acute febrile attacks.

Symptoms.—Fever: At the time of admission to the hospital, which was either with the pain of onset or with that of recrudescence on the third or fourth day, the temperature averaged 103, the extremes being 100.6 and 104.5. The sequence of (1) initial sudden elevation

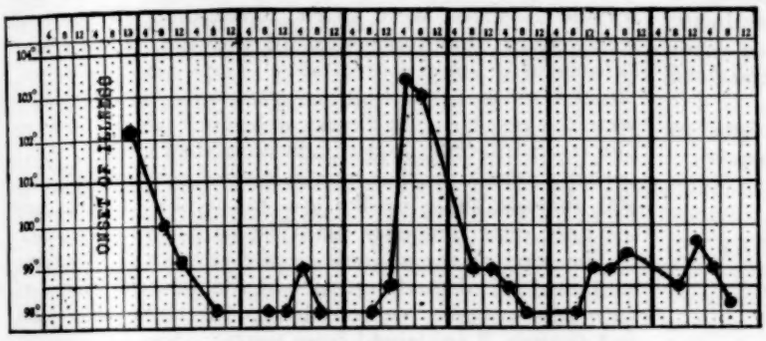

Chart 1.—Temperature in the case reported.

for from twenty-four to thirty-six hours, (2) essentially normal temperature for from thirty-six to forty-eight hours, (3) abrupt rise for another few hours, and then (4) sudden defervescence marking the termination of the illness, has been observed in almost every case. Chart 1 presents a typical temperature curve.

The chief variations from the course described are (1) a final drop of the temperature to normal on the second day with no relapse; (2) the presence of some fever between the initial and final peak of temperature.

Pain: The outstanding and characterizing symptom has been pain, usually localized to one side or the other of the lower anterior chest, but in a few cases referred to the upper midabdomen. This pain has invariably the character of being aggravated by any bodily movement involving the trunk, particularly by deep respiration. In the cases in which the localization has been abdominal, it has been retrosternal as well. The pain is usually sharp, but may be a dull ache. It is often very difficult for the patients to localize it. There was found in several cases slight tenderness over the region of the pain. Bowel movements do not seem to affect it. It does not always remain in the same region: one patient had pain in his right chest at the onset, and with the second rise of temperature had a similar pain on the opposite side. The occurrence of the pain has been synchronous with that of the fever; in the afebrile interim there has been usually no discomfort of any sort, while with the secondary rise in temperature the pain has recurred.

A striking feature has been the absence of marked prostration which characterizes such brief fevers as influenza, dengue and sand fly fever. None of our patients complained of back or limb pains, and headache was rather uncommon. There has been no cough, coryza, sore throat or expectoration. Abdominal cramps, diarrhea and constipation have not been noted. There have been no urinary symptoms.

Physical Signs.—The skin was generally flushed, but there has been no skin eruption except for herpes, or any exanthem on the mucous membrane. The tongue was usually heavily coated except on the edges. There was no pharyngitis. The lungs have always been clear, and in no case has a friction rub been heard. The pulse has been rapid, running parallel with the temperature. The cases with abdominal pain showed considerable stiffness of the abdomen, and the differential diagnosis from appendicitis was not always easy, though tenderness was never marked. The spleen was not enlarged. In fact, no definite physical sign has been elicited.

Convalescence.—This is surprisingly prompt. The patients feel perfectly well from the hour that the pain and fever subside.

Laboratory Findings.—The leukocytes were usually within normal limits, though several cases showed a transient elevation at the onset as high as 14,000; the polymorphonuclears varied form 62 to 93 per cent. There was no remarkable eosinophilia, and the blood showed no parasites.

Urine.—A faint trace of albumin during the fever was common. An interesting finding in several of our cases was the presence, on microscopic examination, of a few blood cells, which disappeared at the end of the illness. There were very few white blood cells and rarely any casts. The stools were grossly negative.

Fluoroscopic and roentgen-ray studies, made in nearly every case, showed no evidence of pulmonary or pleural disease; there was no limitation of the diaphragmatic excursion, which was equal on the two sides.

Final bacteriologic data are not yet complete and will be reported later. Blood cultures, taken in most cases, were always negative, as were the Widal and para-Widal reactions.

COMMENT

Many epidemics of fever of short duration have been reported in the literature, some quite distinctive in their clinical picture, but we cannot find this syndrome described. We believe it to be a clinical entity of infectious nature. Three of our patients came from the same family; two of them were taken ill at the same

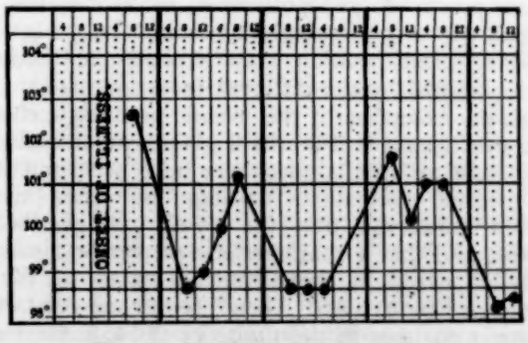

Chart 2.—A typical temperature curve.

time, and the other, two days later. Another patient reported that his brother had a similar disease three days previously. Still another moved from a summer resort in New Jersey to avoid the epidemic prevalent there, but was taken with pain in the chest, and fever the following day. Several physicians report that there are many cases with these clinical features in the cities along the shore of New Jersey, and the daily papers are discussing an epidemic of a queer malady, "devil's

grip," which seems to resemble our cases. No history suggestive of the mode of transmission has been obtained. Some patients have been bitten by mosquitoes, some by sand flies, and some have had no insect bites. The patients have come from widely separated communities and strata of society. Most of them have not been out of New York City. Their diets have been of all types.

SUMMARY

In a small series of cases, apparently part of a fairly widespread epidemic, there has been a syndrome sufficiently constant and recognizable to constitute a clinical entity. It is characterized by sudden onset, with pain in the chest or epigastrium and fever of brief duration, with a tendency to recrudescence on the third day.

For the purpose of convenience, we have come to designate it in this clinic as epidemic pleurodynia.

NASAL SINUSITIS PRODUCED BY DIETS DEFICIENT IN FAT-SOLUBLE A VITAMIN *

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AND
MARGARET E. ARMSTRONG, M.D.
WITH THE COOPERATION OF
MARY K. HUTTON, B.S.
IOWA CITY

In studying the effects on rats of diets low in the fat-soluble vitamin (vitamin A [1]), it has been observed that these animals frequently suffer from what appears to be a nutritive disaster, manifested by stationary weight, or sudden loss in weight and death before the appearance of the characteristic eye infection, xerophthalmia. Similar results have been observed by a number of other workers. For example, Emmett [2] found that of 122 rats fed low fat-soluble A diets, 98.2 per cent. developed xerophthalmia, while out of 136 animals on vitamin A free diets in Osborne and Mendel's [3] group, only sixty-nine developed the disease. Walker,[4] who also observed that the lack of the fat-soluble A vitamin produced xerophthalmia in a variable percentage of experimental animals, suggests that hereditary predisposition may explain the dissimilar results obtained by the different investigators.

With the exception of the specific pathologic changes in the eye tissues and lacrimal glands of animals suffering from xerophthalmia, there have been noted few characteristic pathologic findings in other tissues. Haladay [5] observed that the nasal passages became involved, and that a characteristic respiratory infection usually appeared in the advanced stages of the eye infection. Emmett and Allen [6] found no outstanding pathologic changes in the tissue of the low fat-soluble A fed rats. There were no fatty changes in the various organs, no hypertrophy and no atrophy. The spleen, ileum, colon and kidney showed some congestion, and there was moderate nerve degeneration of the optics. MacKay and MacPherson [7] fed kittens diets low in the fat soluble A vitamin. These suffered from abdominal distention and diarrhea. At postmortem, the walls of the intestines were observed to be thin, extremely like those of children suffering from celiac disease. Werkman [8] found rats and rabbits on vitamin A low diets less resistant to infection with the anthrax bacillus and the pneumococcus.

In our animals, the first symptoms of a dietary deficiency, namely, failure to gain on the low fat-soluble A diets, were often accompanied by certain well-defined symptoms—loss of appetite, snuffles and subseqeuntly labored breathing. These conditions confronted us so often that we questioned whether they were the result of the dietary deficiency per se, or were due to an infection in an undernourished animal. It is perhaps significant that, in a colony of between 400 and 500 animals, those on the low fat-soluble A diets are the only ones that ever manifest such symptoms.

The food of the animals on the vitamin A low diets contained an adequate amount of the various food constituents—protein, carbohydrate, fat, inorganic salts and vitamin B (obtained from yeast). Since the casein which furnished the protein was extracted with hot alcohol for twenty-four hours and ether, U. S. P., for forty-eight hours in a Soxhlet apparatus, and only 10 per cent. of lard was included in the ration, it is obvious that an extremely small amount of the fat-soluble vitamin was present in the food. The young of stock animals, placed on this ration at the age of 4 and 5 weeks, respectively, grew at a normal rate for from two to three months, at the end of which time the weight became more or less stationary and then dropped suddenly unless cod liver oil or some other source of fat-soluble A was added to the diet. If the dietary change was made in time, the appetite improved, the snuffles disappeared and the animals gained in weight. When no food containing vitamin A was given, or when the dietary treatment was delayed, the animals remained in a moribund condition for a few days, lost weight rapidly, and finally died. At necropsy, some of these animals gave evidence of lung infection. The cause of death in others was not apparent; the lungs, heart, kidney and intestines were seemingly normal. If death in these was the result of an infection, this was located in some hitherto unsuspected place.

In dissecting the skulls of animals with the characteristic eye infection produced by diets deficient in the fat-soluble vitamin, it was observed that in all cases the paranasal sinuses and the mastoid cells contained purulent material. These findings led us to suspect that, in those animals receiving the low fat-soluble A diet which had died from no perceptible cause, the infection was located in the upper respiratory passages. In order to determine this, the following study was made.

The heads of sixteen young rats which had been fed for varying lengths of time on diets low in the fat-soluble vitamin A, but having what was considered an ample amount of all other food elements, were examined both grossly and microscopically. As controls, the heads of twenty-nine adult rats were also examined. Of these, six had received our stock ration, which con-

* From the Department of Nutrition, Child Welfare Research Station, and the Department of Ophthalmology, Otolaryngology, and Oral Surgery, State University of Iowa College of Medicine.

1. The term fat-soluble A is used in the generic sense.
2. Emmett, A. D.: The Fat-Soluble A Vitamine and Xerophthalmia, Science **52**: 157, 1920.
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5. Haladay, H. A.: Physiological Test of Cod-Liver Oil for Vitamines, Squibb Memoranda **2**: 6, 1923.
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7. MacKay, H., and MacPherson, M.: The Effect on Kittens of a Diet Deficient in Animal Fat, Bio-Chem. J. **15**: 18, 1921.
8. Werkman, C. H.: Immunologic Significance of Vitamins: Influence of Lack of Vitamins on Resistance of Rat, Rabbit and Pigeon to Bacterial Infection, J. Infect. Dis. **32**: 255 (April) 1923.

sists of cracked yellow corn, cooked soy beans, a small amount of tricalcium phosphate, and whole milk ad libitum. Ten animals had been given from infancy a diet low in the antineuritic vitamin (water-soluble B) but having an ample amount of vitamin A and all the other essential food constituents; twelve had been fed on McCollum's [9] low calcium diet, to which had been added 5 per cent. of butter oil. The second generation gave every indication of extreme rickets. The histologic picture of the bones of the first generation was suggestive. The heads of both were examined. One of the group was a second generation animal on a low phosphorus diet. It was distinctly undernourished—at 17 weeks weighing only 35 gm.

Of the sixteen rats fed on this low fat-soluble vitamin diet, twelve were kept on the ration for periods varying from eight to ten weeks, at the end of which time they were rapidly losing weight, and had developed snuffles. Seven of them had lesions involving one or both eyes, and several others had pigmented skin lesions on the eyelids and feet. These were killed, and their heads were subected to gross and microscopic examination. In each case, a longitudinal section was made through the head, exposing the entire nasal mucosa. Without a single exception, the mucosa was found to be covered wtih a thick, creamy exudate which filled the meatus.

The middle ears of six of these rats were examined, and all were found filled with pus. Three of the rats had abscesses on the tongue near the base.

Two rats were kept on the low fat-soluble vitamin A diet for periods of nine and eleven weeks, respectively, at which time they began to lose weight, developed snuffles and showed signs of general physical weakness. Cod liver oil was then added to their rations. They responded immediately. Their snuffles disappeared and they began to gain in weight. Two weeks later, they were killed. Both had marked purulent inflammation of the nasal mucosa. The middle ears of both were filled with pus.

Three of the rats fed on this low fat-soluble vitamin diet were killed before there was any evidence of physical breakdown. They were gaining in weight; their appetites were good and there were no indications of snuffles. One of them killed after being on the ration only four weeks showed no signs of nasal inflammation. The other two rats killed at six and eight weeks, respectively, showed marked purulent inflammation of the nasal mucosa. One of them had pus in the middle ear and an abscess at the base of the tongue.

The microscopic examination of the nasal mucosa of the animals confirmed the gross finding. The nasal passages and sinuses were filled with pus cells; the mucosa was also infiltrated with polymorphonuclear cells. The epithelium was ragged, and in some areas desquamated. The middle ears were examined microscopically, and the exudate which filled them was found to be largely polymorphonuclear cells.

One of the rats had eye lesions so far advanced that on microscopic examination the entire organ appeared as a mere mass of slightly granular necrotic tissue, which stained faintly and was interspersed with polymorphonuclear cells. Only small fragments of the sclera could be distinguished. In two of the rats, the lesions were similar but a little less advanced. The lens remained in situ. A little of the margins of the cornea remained, but necrosis and purulent exudate obscured the remainder of the structure.

Five of the rats had eye lesions of much less severity. Grossly, the cornea appeared slightly blurred. Microscopic examination showed that there was some irregular thickening of the epithelium covering the cornea, and some slight infiltration of the cornea with round cells, fibroblasts and even a few polymorphonuclear cells. Between the lens and the cornea, polymorphonuclear cells were found.

The abscess in the tongue gave the microscopic picture of an acute pyogenic reaction.

Of the twenty-nine rats examined as controls, only five showed a little reddening of the nasal mucosa, but in these there was no visible exudate, no sign of middle ear infection, and no abscesses at the base of the tongue. The other twenty-four animals were quite free from any signs of mastoid or nasal sinus infection.

From our findings it would seem that the fat-soluble vitamin A plays an important rôle in the immunity of the organism to pyogenic infections, and the general breakdown of the organism following the ingestion of diets low in the fat-soluble vitamin is secondary to such infection. A diet lacking in fat-soluble A makes possible the bacterial invasion of the mucous membranes of the ear and nasal cavities. As the infection advances, it leads to an apparent nutritional disaster. However, the loss of weight generally observed in animals on these vitamin A low diets seems to be due, not to a lack of the specific substance, at present designated as vitamin A, but to infection in an animal whose resistance is lowered by faulty diet. This is shown by the fact that, except in the mildest infections, made manifest by the stationary weight, the addition of a substance containing vitamin A will not restore the animal to a normal condition.

In confirmation of the observation of other workers, it appears that some constituent of cod liver oil or butter oil plays an important part in maintaining the resistance of the body to bacterial invasion. While it has long been assumed that certain fats, especially cod liver oil, exert a curative effect in tuberculosis, as well as in other infections, the findings in our low fat-soluble A animals seem to give experimental evidence for the many clinical observations.

That our animals on the low calcium diets failed to develop an infection of the nasal and aural passages suggests that the well known low resistance in rickets is the result of a deficiency in the fat-soluble A vitamin or some substance associated with it, and not to the calcium deficiency. In this connection, one is led to wonder whether the excessive reaction to infection which takes place in the artificially fed baby is due to the fact that the protective substance (fat-soluble A) has been given in insufficient quantities or has not been absorbed from the alimentary tract in sufficient quantity.

9. McCollum, E. V.; Simmonds, Nina, and Parsons, H. T.; Shipley, P. G., and Park, E. A.: Studies on Experimental Rickets, J. Biol. Chem. **45**: 333 (Jan.) 1921.

Sex Instinct and Sociological Conditions.—There is an ever growing disharmony between the physiologic conditions of the sex instinct and sociological conditions. The nongratification of this instinctive desire may be the source of a mental conflict accompanied by fear and anxiety in a large number of men and women, especially the latter. It must be a constant experience to find in the history and behavior a sexual basis for the mental trouble of patients who are suffering from either a psychoneurosis (for example, hysteria, hypochondriasis, or neurasthenia) or a psychosis (religious mania, manic-depressive insanity, involutional melancholia, or primary dementia).—F. W. Mott, *Brit. M. J.* **1**:407 (March 10) 1923.

Clinical Notes, Suggestions, and New Instruments

AN INTERESTING CASE OF "SILENT" RENAL CALCULUS

AUGUSTUS HARRIS, M.D., BROOKLYN

K. H., a youth, aged 18, referred by Dr. G. B. Reitz, Feb. 8, 1922, complaining of frequency and urgency of urination of three months' duration, had pyuria, but no burning, hematuria or urethritis. There was no complaint of pain in either the back or abdomen. Cystoscopic examination revealed a moderately severe cystitis. Catheters were passed to both renal pelves without obstruction, and with intermittent drip of clear urine from both sides. Renal functional tests were negative. A diagnosis was then made of cystitis, and treatment was outlined to be given by the family physician.

After treatment over a period of a few months, the symptoms improved considerably but later recurred. Cystoscopic examination in November, 1922, then revealed the presence of a right-sided pyelitis, with slight delay in the function of the right kidney. The left kidney was normal. Also blood pressure and blood Wassermann tests were negative. Inoculated guinea-pigs were later found free from tuberculosis at necropsy. Cultures of urines both from the bladder and from the right kidney, taken at different times, showed the presence of *Staphylococcus albus*. Roentgen-ray examinations revealed the shadow of a calculus in about the center of the right

Calcium carbonate stone removed from right kidney.

kidney. Pyelography a few days later showed the shadow of bromid solution in the pelvis to coalesce with that of the stone.

Therefore, on Nov. 17, 1922, operation was performed on the right kidney, using the Mayo retroperitoneal incision. The operation was about as usual, and the kidney was delivered with slight difficulty after palpation of the calculus through the substance of the kidney. It was so situated as not to be reached through a pyelotomy incision. The eye end of a large, straight needle was then passed through the cortex to the stone, and a partial nephrotomy incision about 5 cm. long was then made over the stone just large enough to permit of its removal. The stone was wedge shaped, somewhat like an arrow head, and was rather fixed in its position with its broadest side outward. The kidney tissue appeared healthy. The calices were then explored and irrigated, and the kidney wound was closed with mattress sutures. The wound was closed in the usual manner, and a cigaret drain was used.

The urine was slightly bloody for three or four days after the operation, and during this time there was a slight urinous odor from the dressing. Convalescence was rapid and uneventful, and the patient was discharged from the hospital on the thirteenth day after operation.

Treatment was directed to the remaining pyelitis and cystitis until the urine was entirely free from pus. The patient is in excellent condition, and has been doing his usual work for many months. It has been noted that the urine since operation is often slightly alkaline, and we have attempted particularly to keep it acid.

The stone was rather light in weight, grayish white, somewhat rough, pronged and moderately hard, but fairly easily disintegrated. Chemical analysis by Dr. W. W. Hala showed that it consisted of almost pure calcium carbonate, with a slight admixture of ammonium urate and calcium and magnesium phosphates.

It is interesting to note that the fixed position of the stone in the kidney away from the pelvis explained the absence of pain in this case; also that the chemical structure was calcium carbonate, a type which is often not included in textbooks under the varieties of calculi. This type is, indeed, quite rare.

306 Park Place.

SIMPLIFIED APPARATUS FOR ALVEOLAR CARBON DIOXID DETERMINATION

WARREN T. VAUGHAN, M.D., RICHMOND, VA.

The use of insulin has excited renewed interest in the study of diabetes. Cases with acidosis have often been treated in localities where there are no facilities for determination of blood carbon dioxid tension. Except in comatose patients, the estimation of alveolar carbon dioxid tension will satisfy all clinical requirements. For this I have found the Marriott apparatus satisfactory. Most of the apparatus is contained in a small box measuring 4 by 13 by 20 cm., which can easily be carried in a consultation bag. In addition, it is necessary to have a rubber bladder, a bulb for filling it with air, a length of rubber tubing, and a bottle containing the color reagent.

These extras require additional space, and are sometimes forgotten and left at the office. A satisfactory substitute for the rubber bag is the cuff of an ordinary sphygmomanometer, which may be inflated with the sphygmomanometer air pump.

The color reagent may be placed in glass ampules, each containing enough for duplicate examinations. They are sealed in the office and placed in the box containing the remainder of the apparatus. Although the short length of rubber tubing will fit satisfactorily within the box, in its absence a tourniquet, which is usually at hand, may be substituted. If the glass mouth piece is broken or mislaid, the patient's glass drinking tube will do.

With these simplifications, the entire special apparatus is contained in the small box described.

404 Professional Building.

CASE OF DECIDUAL TEETH ERUPTION AT BIRTH

GEORGE W. CUSICK, M.D., PRINCETON, IOWA

Owing to the rarity of the condition and the scarcity of reports in the literature available, I should judge it worth while to report a case of decidual teeth erupted at birth.

The child was delivered in the left occipito-anterior position after a labor of three hours' duration. The mother, a tertipara, aged 23, reports that her first child was delivered while she was standing, and that she was in labor forty-eight hours with her second, though instruments were not used in either case and both children were normal. This child had the left forearm flexed with the hand palm down on the shoulder, but the delivery was easy without any trauma.

The child was normal in all respects except for a swelling, the size of a large pea on the lower gum, in which the central incisor teeth could be seen and felt. The child refused to nurse, and no means whatever could induce him to take the breast. Fourteen hours later the swelling was incised and the two teeth were in plain view. The left lay horizontal and free in the center of the swelling, the right, in the normal position. Both were easily removed with thumb forceps without any appreciable bleeding, and the tissues were closed at once. The next attempt to nurse the baby was successful, and he has to continue to nurse vigorously ever since. Both teeth were fully developed and of the full size of the usual decidual incisors.

Diseases in Ancient Egypt.—Smith and Jones during the archeological survey of Nubia, prior to the erection of the Assuan dam, examined 6,000 bodies, dating from 10000 B. C. to 30 B. C., and reported no traces of syphilis, rickets and only one case of tuberculosis.—R. L. Moodie: Paleopathology, University of Illinois, Urbana, Ill., 1923.

New and Nonofficial Remedies

LACTIC ACID-PRODUCING ORGANISMS AND PREPARATIONS

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

Milk soured by acid-producing organisms which are more or less natural to ordinary commercial milk, or by certain types or species which are intentionally added with or without the association of alcohol-producing yeasts (kefir, kumyss), has been used as a food for centuries. This more or less extensive practice is due to the fact that the products were palatable to many, or rested on the assumption among the laity, as well as physicians, that they were beneficial in the correction of certain disorders of the gastro-intestinal tract. A great stimulus to the employment of fermented milks was given by the theories of Metchnikoff regarding intestinal putrefaction. These theories were in part that if the products of so-called "intestinal putrefaction," elaborated chiefly in the large intestine, were absorbed, by their action on the walls of the blood vessels they produced arteriosclerosis and premature senility. He also advanced the theory that the growth of the proteolytic bacteria which elaborated these poisons could be modified or prevented by the presence in the intestines of lactic acid-producing bacteria. For this purpose he advocated the use of *Bacillus bulgaricus*.

During recent years, reports have been published from different laboratories which indicate that the growth in the intestinal canal of the normally present *Bacillus acidophilus* may be increased so as to make it the predominating organism, by the administration of lactose (sugar of milk), by milk inoculated and fermented with *Bacillus acidophilus*, or by the administration of viable cultures of *Bacillus acidophilus* in conjunction with lactose. Growing out of the claims of favorable therapeutic action which are based on more or less extensive experimental data, the use of so-called Bacillus acidophilus milk and other products prepared with *B. acidophilus* has become quite widespread in this country. While no one subscribes seriously today to the original theories of Metchnikoff, there are many who believe that the regulation of types of bacteria and of the bacterial activities in the intestine is of much importance from the health standpoint. Since *B. acidophilus* and its very close neighbor, *B. bifidus*, are very common and as a rule the predominating types in the intestines of breast-fed infants, and furthermore, since extensive experiments have been made which show these organisms to be of a strictly nonputrefactive and apparently harmless nature, added weight is given by many to the claims made as to actual therapeutic value.

There is evidence that the administration of sour milk is at times beneficial. This is particularly true in pediatrics, in which field fermented milks have found a wide application. Sour milk and sour milk products are used in cases of vomiting, and of acute diarrhea, as well as in chronic disturbances of the gastro-intestinal tract. On what the particular value of sour milks as such depends is not known at the present time. There can be no doubt that a wide clinical observation gives a basis for the opinion that, for certain types of gastric and intestinal disturbance, fermented milk accomplishes more than sweet milk with a similar fat, sugar and protein content. No one will, of course, deny the great value of milk as a growth-producing and energy-yielding food, whether the milk is sweet or whether it is soured by any of the so-called "lactic acid bacteria."

Recent observations made at various laboratories seem to indicate that, in contrast with *B. acidophilus*, *B. bulgaricus* cannot be implanted or made to proliferate in the intestine, even when administered in large numbers. Much doubt is cast, therefore, on any alleged physiologic action that this organism was claimed to have in the intestine. It is for this reason, and because *B. acidophilus*, according to numerous reports, can be successfully implanted, that preference is now given by many in the use of lactic acid bacillus cultures to those prepared with *B. acidophilus*.

There is little, if indeed any, satisfactory proof that liquid cultures or aqueous suspensions of lactic acid-producing organisms are of real value as local applications to mucous membranes or in arresting putrefaction or suppuration in wounds, abscesses and sinuses. In such conditions, their use appears to be still in the experimental stage.

Sour or fermented milk may be administered in the form of buttermilk or naturally soured skim milk, the lactic acid being produced by *Streptococcus lacticus*, which occurs commonly in milk and other dairy products and grows readily at ordinary room temperature; also in the form of sour milk produced by *Bacillus bulgaricus*.

To these may be now added the so-called Bacillus acidophilus milk which is prepared by the inoculation of milk which has been previously sterilized or heated for about an hour, at or near boiling temperature, with a pure starter made by inoculating pressure-sterilized milk with viable *B. acidophilus* and incubating at from 35 to 37 C. for from twenty to twenty-four hours. On the completion of proper ripening, which should take place within from twenty to twenty-four hours at from 35 to 37 C., a product is obtained which is slightly sour to the taste and has a characteristic odor not very unlike ordinary pure buttermilk. There is a slight separation of whey, but, on thoroughly mixing, the product has a uniform creamy consistency. Bacillus acidophilus milk is produced in various laboratories and dairies, though in many instances with partial success only. It may be made from fresh skim milk, whole milk, or from skim milk to which varying amounts of cream have been added. In all milk culture work, mass inoculation with the use of a sterile pipet is necessary. The preparation of uniform pure Bacillus acidophilus milk requires adequate facilities, the aid of a trained technician, and close adherence to instructions.

Bacillus acidophilus and *Bacillus bulgaricus* belong to a group of bacteria, the lactobacillus group, which has not until recently received much scientific attention, but which is widely distributed in nature. Both are long and fairly slender bacilli, which at times have a tendency to filament formation. They are preferably micro-aerophilic, but grow well under ordinary aerobic conditions. They are gram-positive, though in old cultures individual rods or filaments may at times fail to retain the stain. In spite of claims to the contrary, branching may be observed only occasionally, the branched forms resembling more or less another organism of this group, *Bacillus bifidus*, which quite commonly reveals branching.

Both organisms require carbohydrates for their successful cultivation. Glucose, galactose and lactose broth are fairly suitable, but much less favorable than milk or milk whey. Milk is a particularly good medium for the preservation of viability. For isolation purposes and for colony study, whey-agar and galactose or lactose agar may be used to advantage.

Bacillus acidophilus and *Bacillus bulgaricus* have very many points in common. They differ, however, in the following respects: 1. *B. acidophilus* is relatively slow in acid production in milk, the amount of acid produced during twenty-four hours' incubation rarely exceeding 1 per cent., whereas milk cultures of *B. bulgaricus* may attain an acidity of 3 per cent. in the same period of time. 2. Except in the case of so-called border strains, *B. acidophilus* attacks maltose with acid production, while *B. bulgaricus* is unable to do so. 3. *B. acidophilus* is of intestinal origin and, therefore, can adapt itself to intestinal conditions, whereas *B. bulgaricus* is an ordinary saprophyte and is unable to develop or even to maintain itself in the digestive tract.

The group of lactobacilli is probably one large group which consists of many varieties, in the same way as the *B. coli* and the streptococcus groups. Certain members of the lactobacillus group (acidophilus and bifidus types) are found in the feces of man and animals. Others (bulgaricus type) are very common in cow barns and in dairies, and in the various dairy products. The well-known *Bacillus bulgaricus* is the predominating organism in the oriental sour milk products, and it is to this type of the lactobacillus group that these products in a large measure owe their characteristic properties. All cultures of *B. acidophilus* and *B. bulgaricus* deteriorate with age, and, therefore, should be used soon after they are prepared. While viability appears to be preserved best in milk cultures, even these should have a brief expiration limit, and should be kept at relatively low temperature. Experience has shown that *B. bulgaricus* and *B. acidophilus* are short-lived in so-called tablets and powders. Bacteriologic examination of such powders and tablets, and of various broth cultures, has often shown them to contain, at the most, but few living aciduric organisms. All lactic-acid ferment preparations should be kept at or near ice-chest temperature and marked with an expiration date.

Origin of Thymus Carcinoma.—The view that the reticulum of the thymus is a form of squamous epithelium is borne out by two facts. The first of these is the manner in which Hassall's corpuscles are produced by the physiological differentiation of its cells. Again, additional support is given by the basal-celled carcinomata of this organ, several recorded specimens of which contained evidence of attempts at differentiation into fibrillated squamous epithelium. These tumors do not, in my opinion, originate in the corpuscles of Hassall, although the question if they do or do not is really quite immaterial to my argument, since the corpuscles themselves are now known to be derived from the cells of the reticulum.—G. W. Nicholson: *Guy's Hosp. Report.* **73**:307 (July) 1923.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 8, 1923

IONIZED CALCIUM IN THE BLOOD

The modification of neuromuscular excitability by changes in the chemical make-up of the fluids that bathe the irritable tissues is a phenomenon now familiar to all students of physiology. In general, the action of sodium and potassium is stimulating, whereas that of the alkali earths calcium and magnesium is depressant. It has therefore become a popular view in recent years that the stable condition of the neuromuscular apparatus from the standpoint of irritability depends on the "balance" of these elements so that their antagonistic effects are properly compensated. Accordingly, one may assume that normally the blood and tissue fluids represent "physiologically balanced" solutions. This view has been strengthened by the now well established observation that in cases of infantile tetany the blood serum usually contains less calcium than the serum of healthy infants or those suffering from ailments other than tetany, often containing only half as much. Evidence of appreciable alterations in the content of the other bases—alkalis or magnesium—has not been recorded. Consequently, the low calcium content seems to be indicated as a most probable cause of the increased neuromuscular irritability found in tetany.

Relief of the condition just described is afforded by the administration of calcium salts, the chlorid being commonly employed for this purpose. More recently it has been demonstrated that both ammonium chlorid and hydrochloric acid can also bring about therapeutic success in the treatment of tetany. By those who have looked on tetany as a symptom of alkalosis, the efficacy of the free acid will be explained on the basis of its "neutralizing" effect. Since, however, the hydrochloric acid is ordinarily administered along with milk, which contains rather insoluble salts of calcium, it is readily conceivable that the acid increases the absorption of the latter as the more soluble calcium chlorid. As a matter of fact, ingestion of hydrochloric acid in cases of infantile tetany is followed by an increase in the calcium content of the blood serum.

The beneficial effects of ammonium chlorid are not thus easily explained. In a study of the problems involved, Gamble, Tisdall and Ross[1] have observed that calcium chlorid, in consequence of the relatively much greater absorption of the chlorid (Cl^-) ion than the calcium (Ca^{++}) ion, behaves as does an acid substance. The effect on the acid-base metabolism of the ingestion of 1 gm. of calcium chlorid is described as of the same extent as would be produced by placing in the milk 75 c.c. of tenth-normal hydrochloric acid. The "acid effect" functions to increase the hydrogen-ion concentration of the blood plasma and to produce an increased ionization of calcium. Consequently, as Gamble and Ross contend, whenever an "increased" metabolism of hydrochloric acid is brought about, a physiologically adequate concentration of ionized calcium is secured from a lowered total calcium content.

THE CORPUS LUTEUM AND THE UTERUS

The 1923 edition of New and Nonofficial Remedies, published by the American Medical Association, states that ovarian therapy is still on trial. This might well be expected in view of the paucity of knowledge about ovarian function. For some time it has been recognized that the ovaries probably produce internal secretions or liberate hormones of some sort that are necessary for the proper activities of the uterus; and it has further been suspected that these chemical products may have obscure effects on metabolism and the nervous system. Persons who have not given detailed attention to ovarian problems often fail to realize that the organs engaged in ovulation are notably complex in structure. The discharge of the ovum leads to the formation of the corpus luteum, which has of late come into prominence in the physiology of the sexual cycle. There is experimental evidence that so long as the corpora lutea survive, further ovulation is prevented. Apparently they supply something which inhibits the maturing of the ovarian follicles, leading to the discharge of the ovum.

Leo Loeb, who has devoted much attention to this subject at the Washington University in St. Louis, has lately reached the conclusion that in mammals two distinct phases can generally be distinguished in the sexual cycle.[2] The first is dominated by an ovarian factor other than the corpus luteum, in all probability by the maturing follicles, the walls of which secrete a substance causing various kinds of circulatory changes, growth processes, and possibly certain psychic alterations. It is responsible for proliferation in the mammary gland, in the vagina, and also in the uterine wall. This substance calls forth the changes in the ovary that culminate in ovulation. The second cycle is

1. Gamble, J. L., and Ross, G. S.: Studies of Tetany, II, Am. J. Dis. Child. **25**: 470 (June) 1923. Gamble, J. L.; Ross, G. S., and Tisdall, F. F.: Studies of Tetany, I, ibid., p. 455.
2. Loeb, Leo: The Mechanism of the Sexual Cycle and the Specificity of Growth Substances, Proc. Soc. Exper. Biol. & Med. **20**: 443 (May) 1923.

dominated by a product of the corpus luteum which sensitizes the uterus and facilitates the fixation and development of the fertilized ovum. It prevents ovulation, and this function is held in abeyance until the corpus luteum degenerates—a process following in the usual routine of events.

Recent experiments of Loeb [3] have demonstrated, for one species at least, that after extirpation of the uterus there is a long continued preservation and function of the corpus luteum. This is analogous to what occurs during pregnancy when the integrity of the corpus luteum probably occasions an inhibition of ovulation and other functions that would otherwise continue to appear in a routine way. The persistence of the corpus luteum after hysterectomy cannot be a matter of physiologic indifference to the female, particularly when it is realized that growth processes do not occur in the vagina, and estruation is prevented. Loeb regards it as not probable that in principle the effect of the uterus on the corpus luteum differs in different species. It is worthy of note, therefore, that in experimental animals the full effects of hysterectomy on the function of the corpus luteum are not observed if a part of the uterus is retained at the operation. Perhaps when these interrelationships in the sexual cycle of the female are better known, and probably only then, the therapeutic use of ovarian products can be placed on a more certain foundation than it rests on at present.

EMPIRICISM AND SCIENCE IN MEDICINE

Progress in medicine during recent years has been due in large measure to the efforts of two somewhat distinct groups of workers. One of these includes the clinicians, whose primary interest centers in the care and treatment of the sick. The other group is represented by the so-called laboratory workers—persons engaged in the study of the disciplines fundamental to medicine and sometimes inaptly termed preclinical sciences. In his address as chairman of the Section on Pathology and Physiology at the San Francisco session, Luckhardt [4] lamented the fact that the efforts of these two groups have rarely been concerted. No one can review the history of modern medicine without gaining the conviction that both types of workers have promoted its practice; and it requires no large perspicacity to discern that all of them are important in the advancement of the profession. Hence it was a timely note sounded by Luckhardt when he insisted that the mutual misunderstanding, so prevalent among even the best representatives of both groups, is due to profound ignorance of each other's work. As a rule, he says, the laboratory man has never had an occasion to observe with what care and scientific acumen the good clinician gathers and weighs his data before instituting a rational and effective therapy. The clinician, on the other hand, rarely is in a position to observe and appreciate the resource, patience and pertinacity required of the laboratory man in order to solve a research problem the results of which are subsequently so readily susceptible of practical application.

An illustration of the effect of this reciprocal derogatory attitude appears in the history of cod liver oil as a remedy, recently reviewed by Guy [5] of Yale University School of Medicine. She points out that Rosenstern wrote in 1910: "Cod liver oil is in the forefront of children's remedies. For long it has been struggling against the skepticism of exact science." This comment deserves to be driven home to those who tend to develop that most reactionary it-can't-be-done attitude. Guy reminds us that in each country the experience was the same: Cod liver oil was used by the fishing people and peasantry; and then accidentally observed by some physician, tried by him, and so made known generally to the profession. At first, it was used in chronic rheumatism and gout; then, naturally enough, in other bone and joint diseases, notably rickets and osteomalacia (which was considered closely allied to gout); then in scrofula, because of its supposed identity with rickets, and finally in other forms of tuberculosis.

Today, even though we cannot "explain" the action of cod liver oil, its beneficial action in various conditions has been placed on a rational basis. The "healing potency" can be demonstrated by measurable changes under controlled conditions. The results of carefully planned experiments on laboratory animals have been brought to bear on clinical experience, so that one is justified in concluding with Park, Guy and Powers [6] of Yale that, in the presence of calcium or phosphorus starvation, cod liver oil enables the animal to get along as if the calcium or phosphorus were supplied in sufficient or almost sufficient quantity in the diet. Obviously, they say, cod liver oil makes the metabolic processes of the body in respect to these two elements vastly more efficient, even though it does not supply them.

The clinician's observation, long unsupported and even disparaged by the worker in the chemical laboratory, has thus "come into its own." Mental aloofness and a hypercritical attitude have become obliterated in the common belief in established facts. Let us, however, not on that account overexalt empiric methods or undervalue a rigorously critical attitude. The latter has more than once saved us from quackery and charlatanism, from painful error or dangerous overconfidence. The cults always delight to stress the historic incidents of the failures of the scientist to grasp a truth that was subsequently proclaimed far and wide. But even the rankest empiricist is quick to discover a palpable fraud. Metallic tractors, electric belts and

3. Loeb, Leo: The Effect of Extirpation of the Uterus on the Life and Function of the Corpus Luteum in the Guinea-Pig, Proc. Soc. Exper. Biol. & Med. **20**: 441 (May) 1923.
4. Luckhardt, A. B.: The Progress of Medicine, J. A. M. A. **81**: 347 (Aug. 4) 1923.
5. Guy, Ruth A.: The History of Cod Liver Oil as a Remedy, Am. J. Dis. Child. **26**: 112 (Aug.) 1923.
6. Park, E. A.; Guy, Ruth A., and Powers, G. F.: A Proof of the Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism, Am. J. Dis. Child. **26**: 103 (Aug.) 1923.

even subtle electronic currents are schemes of deception which do not require scientific training and clinical insight, but merely common honesty for their undoing.

CALCIUM DEMANDS IN PREGNANCY

The medical literature of the present time is replete with discussions of the biochemical rôle of the element calcium. The indispensability of calcium for satisfactory growth has long been realized. It forms an essential and considerable part of the bony skeleton, in which it cannot be replaced by any other element, even such as the alkali earths magnesium and strontium. The extent to which calcium is available for bone growth depends not merely on the amount that is supplied through dietary channels to the organism, but equally on the presence of certain factors that promote its deposition in the bones. One of these extraneous factors is represented by radiant energy; a comparable influence attaches to certain dietary components, notably to egg yolk and cod liver oil. These furnish something to the organism whereby, when the supply of calcium is not abundant, the body is enabled to assimilate and hold lime salts more efficiently. In fact, Park, Guy and Powers [1] have argued that the similarity between the action of cod liver oil and that of radiant energy in rickets is so close that a connection must exist between them. So far as the calcium and phosphorus metabolism of the body is concerned, cod liver oil seems to be a substitute for radiant energy. These investigators are, in fact, eager to ascertain whether, in the near future, a relation between cod liver oil and radiant energy will not be established of such nature that their effects will be explicable on a single basis.

When optimal conditions of diet, including an abundance of calcium, phosphorus and the organic, or so-called antirachitic, factor prevail, radiant energy appears to offer no additional advantage for bone growth. At any rate, Goldblatt and Soames [2] of the Lister Institute in London observed that animals on such a ration grew equally well whether kept in darkness or in daylight supplemented by irradiation from a mercury vapor quartz lamp; and the development and calcification of their bones were normal. Apparently, the conditions are favorable so long as the blood exhibits its normal content of the requisite bone-producing elements. It might be expected that this could become reduced under conditions, as in pregnancy, in which large drafts must be taking place. By estimating the amount of calcium in fetuses of different ages, it has been found that after about the seventh month there is an abrupt alteration, represented by an increment in the calcium retention, which must mean a sudden change in the demands on the maternal stores of that element. From a study of the blood of pregnant women at the Royal Free Hospital in London, Widdows [3] has detected a tendency to a decrease of the calcium content toward the last months of pregnancy, and a general tendency to a rise directly after confinement.

If this is confirmed, the results indicate anew the importance of a sufficiency of calcium in the diet of the mother during the period of larger demand referred to; otherwise, as Widdows and many others have urged, the calcium needs of the fetus may be supplied by withdrawing unduly large amounts from the lime-bearing tissues of the mother. The actual daily increment retained by the average human fetus after the two hundred and tenth day approximates more than 600 mg. As the variation in the calcium content of the maternal serum is, at most, never very marked even in the days of such demands, the latter must be met by a perfectly balanced calcium metabolism. This is another illustration of the splendid adjustment of the human organism to the varied demands on it.

1. Park, E. A.; Guy, R. A., and Powers, G. F.: A Proof of the Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism, Am. J. Dis. Child. **26**: 103 (Aug.) 1923.
2. Goldblatt, H., and Soames, K. M.: A Study of Rats on a Normal Diet Irradiated Daily by the Mercury Vapour Quartz Lamp or Kept in Darkness, Biochem. J. **17**: 294, 1923.
3. Widdows, S. T.: Calcium Content of the Blood During Pregnancy, Biochem. J. **17**: 34, 1923.

Current Comment

REFLEX CHANGES IN NASAL VOLUME DURING BREATHING

The remarkable adaptive processes that are found in the living organism must be a never failing source of interest to the student of physiology. The known instances are numerous, and new instances are frequently being brought to our attention. Thus, there may be a compensatory hypertrophy of one part to make up for a defective function in another. The blood supply to various organs and tissues is adjusted in abundance to correspond with the varied demands for activity that are made on them from time to time. Consequently, when functional performance is speeded up in the digestive glands, for instance, the semipallor of their resting state is replaced by the blush of a more liberal circulation. Again, at higher altitudes the lowered partial pressure of the indispensable oxygen speedily elicits an increase in erythrocytes whereby the oxygenating capacity of the blood is enhanced. The alternation of inhibition and stimulation, of muscular rest and contraction, in the orderly progress of peristalsis also is wonderfully adapted to the propulsion of food masses in the alimentary tract. Recently, Tatum [4] of the University of Chicago has described altered resistance to the passage of air through the nasal channels under different conditions of need for pulmonary ventilation. Variations in respiratory efficiency, represented by such extremes as overventilation of the lungs by excessive breathing, on the one hand, or obstruction to respiration, on the other, produce a change in the nasal resistance to air. These

4. Tatum, A. L.: The Effect of Deficient and Excessive Pulmonary Ventilation on Nasal Volume, Am. J. Physiol. **65**: 229 (July) 1923.

volume changes in the nasal chambers, involving the widening of the nasal air passage in conditions such as require increased ventilation of the blood, are reflex in character, the seat of action doubtless being the vasomotor center. It is, indeed, somewhat remarkable to find an adaptive reflex mechanism which, as Tatum interprets it, lessens nasal resistance when respiratory need is increased, and possibly by a more passive process brings about increased resistance in the converse condition.

GLYCOLYSIS IN DIABETES

The discovery of insulin has awakened a new interest in the theories of diabetes, and has stimulated the further study of the behavior of sugar in the body. It has long been known that glucose disappears after a time from samples of normal blood that have been allowed to stand in vitro, the process being designated as glycolysis. The French clinician Lépine [1] has long maintained that the blood of diabetic persons is less capable of active glycolysis than is the blood of nondiabetic persons. Little attention has been directed to this view by most investigators, because they have been inclined to look to the tissues rather than to the circulating fluids of the body for the explanation of the diabetic diathesis. A return to the earlier contention has been initiated by the widely quoted researches of Winter and Smith [2] in England, indicating a difference between the carbohydrates of the normal and those of the diabetic person. Normally the blood sugar is alleged to be γ-glucose, whereas the blood sugar of persons suffering from a severe grade of diabetes mellitus is probably α β-glucose or possibly a polysaccharid. The English investigators assume the existence of an enzyme capable of transforming the α β form of glucose into the γ form, but believe that such an agent must be furnished to the blood by some tissue. By the use of delicate methods of analysis, Denis and Giles [3] of Tulane University, New Orleans, have found anew that glycolysis is much more active in normal blood than in that of persons suffering from fairly severe diabetes. In the blood from extreme cases no extravascular glycolysis whatever may be detectable. These findings are explained, in the light of Winter and Smith's studies, on the assumption that γ-glucose—the blood sugar found in normal human beings—is the only form readily attacked by glycolytic enzymes. The amount of glycolysis bears no relation to the concentration of the blood sugar. It appears from the latest studies that after successful treatment the glycolytic power of the diabetic blood increases—a finding interpreted on the assumption that the blood sugar of the diabetic thus becomes not only quantitatively, but also qualitatively, more nearly like that of the normal person. A diminished glycolytic power of blood from patients with diabetes has also lately been reported by Thalhimer and Perry [4] of Milwaukee, but their interpretation has been somewhat different.

1. Lépine, R.: Le diabète sucré, Paris, 1909.
2. Winter, L. B., and Smith, W.: J. Physiol. **57**: 100 (Dec.) 1922.
3. Denis, W., and Giles, U.: On Glycolysis in Diabetic and Non-diabetic Blood, J. Biol. Chem. **56**: 739 (July) 1923.
4. Thalhimer, William; and Perry, Margaret C.: Diminished Glycolysis in the Blood in Diabetes, J. A. M. A. **80**: 1614 (June 2) 1923.

STREPTOCOCCI AND URINARY CALCULI

The debated questions regarding the elective localization of certain types of bacteria in the body, and the possible significance of this in connection with infections, are again raised by the recent reports of Rosenow and Meisser [1] of the Mayo Foundation. In 1916, Rosenow presented evidence indicating the possibility of producing gallstones experimentally in animals by infection with streptococci from cases of cholecystitis in man. The latest experiments seem to demonstrate the comparable formation of urinary calculi by the invasion of the organism with the bacteria isolated from the urine and foci of infection in persons suffering from nephrolithiasis. A special interest attaches to these studies in that the foci of infection in the experimental animals were created around the teeth, the latter first being devitalized. The experimentally produced chronic foci, aside from being the source of the streptococcus which tended to localize electively in the urinary tract, appeared to have a generally deleterious effect. In this, many clinicians will recognize situations comparable to what they have encountered in man. Rosenow and Meisser observed that the experimentally produced calculi were similar in physical properties and chemical composition to those found in the nephrolithiasis of man. Hence they urge that the factor of focal and other infections be given thorough consideration in the management of such cases. If certain streptococci have the specific power to incite the conditions necessary for calculus formation, it is quite possible, as Rosenow and Meisser suggest, that a stone-forming infection may account for the prevalence of nephrolithiasis in certain localities. Their demonstration of the presence of the micro-organisms precisely where precipitation and crystallization begin suggests strongly that the mechanism of the production of stone is largely a local process, and that the reactions brought about produce the physicochemical conditions, such as the nucleus and organic framework, necessary for the formation of calculi. More general effects are, of course, not thereby excluded.

1. Rosenow, E. C., and Meisser, J. G.: The Production of Urinary Calculi by the Devitalization and Infection of Teeth in Dogs with Streptococci from Cases of Nephrolithiasis, Arch. Int. Med. **31**: 807 (June) 1923.

SAFE DRIVERS

As deaths and accidents from careless automobile driving mount to more and more striking figures, new panaceas are offered for the correction of the evil. Stringent laws and severe punishments have had some mitigating effects, but in addition there appears to be necessary some method for providing that those who attempt to drive motor vehicles are mentally and physically competent. Establishment of a suitable standard would in itself be an important accomplishment. For example: What should be the minimum age for those entrusted with motor vehicles? What standard of eyesight is necessary before a person can safely judge distances? How much hearing is necessary to permit a driver to accommodate his position to the warning signals coming to him from other vehicles from behind or to the side? How rapid and satisfactory must the

mental reaction of the driver be to enable him to judge whether or not he can pass a grade crossing before it is reached by an approaching train, and to act quickly in case of emergency? Certainly, the time is ripe for the establishment of such standards and for insistence that those who drive fast-moving motor vehicles pass the test. Is it not absurd that evidence of competence should be required of professional drivers, whereas any amateur may drive without proof of his fitness?

THE GOITER SURVEY IN GRAND RAPIDS

Since the recent editorial note on goiter prophylaxis,[1] the results of a goiter survey of the school children of Grand Rapids, Mich., have been announced.[2] The work seems to have been more extensive than earlier surveys, including boys as well as girls, and extending through all classes in private, parochial and public schools. Among 26,215 pupils examined, 30 per cent. had enlarged thyroids. Thirty-two per cent. of those affected were boys and 67 per cent. were girls. The ratio of boys to girls was about 1:2, although the moderate and marked enlargements were probably in about the same ratio that Kimball found (1:6). Above 10 years of age, the number of girls affected was about two and a half times the number of boys. In high schools, the percentage of pupils affected ranged from 39 to 60. In view of these findings, the city health department has undertaken to prevent simple goiter by the administration of 10 mg. of iodin weekly throughout the school year. The results of the prophylaxis are, of course, not yet available.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Child Welfare Bill Passed.—The bill to appropriate $50,000 for the child welfare department, with an additional $50,000 when, in the judgment of the governor, conditions warrant it, and an annual appropriation of $100,000 after the first year's appropriation, was passed by the house, August 22, by a vote of 72 to 8.

Southeastern Alabama Counties Medical Associations.—The southeastern Alabama medical societies held a joint annual meeting and picnic at Flemings Mill, August 21, under the presidency of Dr. James M. Watkins, Troy. Barbour, Bullock, Coffee, Covington, Crenshaw, Dale, Henry, Geneva, Houston, Montgomery and Pike counties were represented. More than 700 guests attended the barbecue dinner. Dr. Seale Harris, Birmingham, and Dr. Samuel W. Welch, Montgomery, state health officer, gave addresses. Dr. James J. Winn, Clayton, aged 81, a practitioner for sixty-three years, also spoke.

Proposed Legislation.—A committee composed of Dr. Seale Harris, Dr. Benjamin L. Wyman, Dr. Dyer F. Talley, Dr. William C. Gewin, Dr. Joseph D. Heacock and others was appointed at a meeting of the Jefferson County Medical Society at Birmingham, August 13, to work in the interest of a bill proposed to amend the state health laws, so that county boards of health have authority to arrange their own budgets. The committee will go to Montgomery, if necessary, to present the bill. Dr. Judson D. Dowling, health officer, Birmingham, stated that all employees in the city and county health departments had signed a petition to the legislature, asking that a bill be passed removing employees of the department from political control. The proposed amendments will give the board of health the same authority over appropriations for health purposes that the board of education has over school funds.

1. Iodin as a Prophylactic for Goiter, Current Comment, J. A. M. A. **81**: 582 (Aug. 18) 1923.
2. Reed, Torrance; and Clay, H. T.: A Survey of Thyroid Enlargement Among the School Children of Grand Rapids, J. Michigan State M. S. **22**: 323 (Aug.) 1923.

ARIZONA

Personal.—Dr. Alfred C. Kingsley has resigned as superintendent of the Arizona State Hospital for the Insane, Phoenix, and is temporarily taking charge of the Magma Hospital, Superior, while Dr. Chester R. Swackhamer is taking a vacation.

New Board of Medical Examiners.—The new board of medical examiners went into office, July 1. The personnel of the board is as follows: president, Dr. Harry T. Southworth, Prescott; vice president, Dr. William O. Sweek, Phoenix, and secretary, Dr. A. Garfield Schnabel, Tucson.

CALIFORNIA

Judgment Revoking Naturopath's License Reversed.—The judgment of the superior court, setting aside the state board of medical examiners' revocation of license to practice naturopathy held by Roy Millsap, Los Angeles, was reversed by the second district court of appeal in a decision rendered by Justice Curtiss, August 27, according to reports. The decision of the higher courts directs the superior court to dismiss the proceedings.

Dr. Morrison Resigns.—Dr. Henry E. Morrison, superintendent of the Sacramento Hospital, Sacramento, has resigned following his "exoneration" by the grand jury when charged with mismanagement of the institution. Last May student nurses charged, it is reported, that Dr. Morrison's conduct was unbecoming, and that the institution was mismanaged. The entire student body, with one exception, and all of the graduate nurses, resigned some weeks ago.

DISTRICT OF COLUMBIA

New Exhibit at Smithsonian Institute.—A new permanent health exhibit will be established at the Smithsonian Institute, Washington, showing methods used in teaching child hygiene. The exhibit is conducted by the American Child Health Association, and is in four sections. One shows methods of prenatal care and instruction for mothers; another, the care of babies during the first months of life; one illustrates games and story methods for training children of preschool age; another consists of "rare objects" related to health. Other essential health practices, such as sleep, bathing and exercise, will be similarly presented in terms of child interests.

FLORIDA

Society News.—The Hillsboro County Medical Society held its annual picnic, July 12, at Lake Stemper, near Tampa.—Columbia County Medical Society is now holding two meetings a month in conjunction with the staff of the U. S. Veteran's Hospital No. 63, Lake City. Two clinical cases are presented at each meeting, one by a representative of the government institution, and one by a civilian practitioner.

GEORGIA

County Physicians Organize.—At the annual convention of county commissioners at Americus, the Association of the County Physicians of the State of Georgia was organized for the purpose of bringing about a closer relationship between the county commissioners of the state and the county physicians.

Better Baby Bill Fails.—The bill to appropriate funds to match federal funds provided under the Sheppard-Towner Law failed in the house of representatives, August 11. Representative Huxford opposed the act, declaring that it had its inception in some socialistic theory. The bill originally called for $24,530 for each of the years 1924 and 1925 to match a like amount of federal funds, but an amendment was adopted reducing the amount to $5,000 for each of the two years.

IDAHO

Hospital Head Named.—Dr. Richard G. Eaton, assistant superintendent, Easton State Hospital, Medical Lake, Washington, has been appointed superintendent of the Idaho Insane Asylum, Blackfoot, to succeed Dr. Clayton A. Hoover, who resigned recently.

ILLINOIS

Hospital News.—A building to accommodate 150 patients and a home for nurses will be erected at the Methodist Hospital of Central Illinois, Peoria.——The David Prince Sanatorium, Springfield, was recently damaged by fire to the extent of $50,000. The institution will be rebuilt.

Health Exhibits at Amusement Park.—At the official Illinois state educational exhibit in Exposition Park, Aurora, free medical examinations are made and advice given under the direction of the department of public health by Dr. A. J. Markley, Belvidere, and a staff of Aurora physicians. The department of public welfare is exhibiting a collection of work contributed by the men and women in the state institutions for the blind and insane. In connection with the department of social hygiene, there is an exhibit explaining educational methods of eradicating venereal disease; in the afternoon and evening moving pictures are used to show occupational therapy in state hospitals, and the proper care of babies in summer.

Care of Insane War Veterans.—General Hines, director of the U. S. Veterans' Bureau, Washington, D. C., announced, August 29, that insane veterans of the World War now in other than government institutions in and near Chicago will be cared for at Dwight, Maywood and at the Great Lakes Naval Training Station, where facilities will be provided. As a result of the survey of the number and condition of these men, Director Hines has asked the navy department to hold the tract at the Great Lakes station which it had proposed to sell. He will request Congress to appropriate sufficient funds for the repair and upkeep of the buildings. There are now about 6,000 veterans of the World War in contract hospitals. Of the 560 cases of insane ex-service men in Illinois, the less serious cases will be cared for at Dwight.

INDIANA

Illegal Practitioner Arrested.—According to reports, A. Witkowski, Hammond, was arrested, August 25, on warrants sworn out by the Indiana State Medical Association for practicing medicine without a license. Witkowski was recently driven out of Chicago, where he had a branch office. His alleged theory of treatment is that if a sick person is kept in close proximity to a healthy animal, the animal will absorb the disease.

IOWA

Poliomyelitis Appears.—Eleven cases of infantile paralysis have been reported to the health department at Council Bluffs during the last two weeks.

MAINE

Personal.—Dr. Earle P. Gregory, Fryeburg, has been appointed medical examiner for Oxford County.

MARYLAND

Hospital News.—Additional dormitories will be erected at the Crownsville State Hospital, Crownsville, at a cost of $200,000, it is announced by Dr. Robert P. Winterode, superintendent.——The lot adjoining the Western Maryland Hospital, Cumberland, has been purchased for the purpose of erecting an additional wing in the near future.

Change in Editorial Board of Psychiatric Journal.—At the seventy-ninth annual meeting of the American Psychiatric Association in Detroit, Dr. George H. Kirby, director of the Psychiatric Institute of the New York State Hospitals, Wards Island, New York, was appointed a member of the editorial board of the *American Journal of Psychiatry* in place of the late Dr. J. Montgomery Mosher.——Friends and fellow workers of Dr. Henry M. Hurd, Baltimore, recently gave a dinner in honor of his eightieth birthday. Dr. Hurd was for many years editor in chief of the *American Journal of Psychiatry* and is now editor emeritus. The journal is entering its eightieth volume, the first number having appeared in July, 1844, as the *American Journal of Insanity*. This name was changed in 1921 when the American Medico-Psychological Association became the American Psychiatric Association.

MASSACHUSETTS

Illegal Practitioner Fined.—According to reports, Ned M. Gilman, Leominster, chiropractor, was fined $100 by Judge Thayer in the superior court, August 22, for practicing medicine without a license.

Personal.—Dr. Charles H. Phillips, chairman of the board of health, Beverly, has resigned and will reside in California. ——Dr. Frederick J. Bailey, Dorchester, has been appointed deputy health commissioner of child hygiene by Mayor Curley.——Dr. Abraham S. Morris has resigned as city physician of Haverhill. Drs. Myron Livingston and David Zelig have been appointed city physicians to succeed Dr. Morris. ——Dr. Frank S. Atwood, Salem, was reappointed medical examiner for the sixteenth Sussex district.

MICHIGAN

Mental Test for Automobile Drivers.—Following the report of 160 persons killed and 4,060 injured since January 1 in traffic accidents, the police commissioner of Detroit has ordered that applicants for licenses to drive automobiles will be required to pass an examination to show whether they know the standard traffic laws and whether they are mentally capable of understanding and observing the laws. Dr. Arnold L. Jacoby, city psychiatric physician, will conduct the mental tests. A recent canvass by the police department showed that barely 20 per cent. of the drivers are familiar with even the most important of the traffic laws. The Detroit Automobile Club has given the city 2,500 additional "stop" street signs which are being installed by the traffic bureau of the police department.

MINNESOTA

Mental Hygiene Department Established.—A psychopathic department has been established at the Minnesota General Hospital, Minneapolis, under the law of 1923. The law states that this institution is to be administered for the care, observation, study and treatment of defective persons as defined in existing statutes, and such other persons as are afflicted or supposed to be afflicted with any other abnormal mental condition. Persons addicted to drugs may also be admitted to the institution. The law carries an initial appropriation of $15,000.

MISSOURI

Trachoma Hospital Opened.—A new hospital for the treatment of trachoma has been opened at Rolla by the U. S. Public Health Service.

New Nurses Board.—Governor Hyde has appointed the following members of the new nurses board under the revised law passed at the last session of the legislature: Miss Bella O'Neil of Mullanphy Hospital, St. Louis; Miss Louise Ament of the Lutheran Hospital, St. Louis; Miss Rose Hales, St. Joseph, and Miss Mary G. Bearman, Kansas City. The governor will establish a precedent by appointing a physician on the board, but so far the appointment has not been announced.

MONTANA

Personal.—Dr. William H. Pickett, Bolivar, public health officer with the Missouri State Board of Health, has been appointed successor to Dr. George A. Fuson, who recently resigned as city-county health officer of Great Falls and Cascade County.

NEBRASKA

Water Famine in Omaha.—It is estimated that 20,000 people have been thrown out of work, and that the loss to the city would reach $5,000,000 by the recent water famine in Omaha, caused by a cave-in of the mud banks of the Missouri River adjacent to the plant of the city water supply, August 20. A test of the city water showed that the fluid was 43 per cent. mud. The only water to be had has come through a 3,000 foot fire hose stretched across a bridge from Council Bluffs, and people stood all night waiting for a drink. The city health inspector has issued a statement declaring that the city is threatened with an epidemic of typhoid fever (several cases having already occurred), and has warned citizens not to drink the water. Packing houses, laundries and other plants have closed their doors. The Methodist Hospital announced, August 23, that the clinic was postponing all but emergency operations, owing to the water shortage.

NEW JERSEY

Hospital News.—A new addition will be erected for the Hospital and Home for Crippled Children, Newark.——Plans are being prepared for a hospital for chronic and convalescent patients to be erected on the city's property at Ivy Hill. The new institution is designed to relieve the congestion at the Newark City Hospital.

New York City

Memorial to Physician.—The Jewish Hospital, Brooklyn, will name a building at the hospital as a memorial to Dr. Leon Louria, who died in the institution, August 27 (The Journal, this issue, p. 846). Dr. Louria had been attending physician to the Jewish Hospital since 1901.

New Dental School of Columbia University.—The College of Dental and Oral Surgery, New York, founded in 1852, is about to become extinct, having been consolidated with the dental school of Columbia University. The real estate of both earlier corporations at Fifty-Ninth Street and at Thirty-Fifth Street is included in the combination.

NORTH DAKOTA

Medical Examiners Named.—Governor Nestos has appointed Dr. Murdock MacGregor, Fargo; Dr. Henry H. Healy, Grand Forks, and Dr. John E. Countryman, Grafton, as members of the state board of medical examiners for terms of three years each, succeeding, respectively, Dr. Joseph C. Suter, Grafton; Dr. Albert W. Skelsey, Fargo, and Dr. Archie D. McCannel, Minot.

OHIO

Chiropractors Prefer Jail to Fines.—Three Belmount County chiropractors, G. Frank Malin, O. V. Peterson and John T. Beckett, are serving forty-two days in the county jail in preference to paying fines of $25 each, levied on them for practicing medicine without a license, it is reported.

Physicians to Aid School Board.—The Columbus Academy of Medicine has sent individual health cards to all of its members in cooperation with the schools committee of the chamber of commerce and the board of education. The health cards are for use in examining children brought to the physicians by parents who prefer having them examined by the family physician. The mayor is urging all parents to have their children examined before the beginning of the autumn school term.

"Mind Hospital" at University.—It is planned to establish a full-time "mind hospital" at the Ohio State University College of Medicine, Columbus, next year. The hospital is now operating temporarily under the supervision of Prof. E. A. Doll, former state psychologist for New Jersey. The mental habits of students will be studied and suggestions for improvement offered. This work is expected especially to benefit probation students, or those who have failed in all or a part of their work of the previous term.

OREGON

Hospital News.—The first cottage of the new children's home at Corvalis has been opened. It has a capacity of forty and was erected by the Christian Temperance Unions. There is a farm of 350 acres. Funds for two more cottages have been donated by the city of Portland.

Laws for Child Education in Oregon.—The legislature has recently passed an act providing for the enumeration, instruction and cost of instruction of crippled children within the state, whose physical condition makes it impossible for them to attend public schools. A penalty for the violation of the law is provided, and previous laws in conflict with it are repealed.——Another law passed by the 1923 legislature provides that special classes for the instruction of "educationally exceptional children" shall be established in the public schools of the state. This term includes any child from 6 to 17 years of age who is not receiving proper benefit from the ordinary instruction in the schools, either because of exceptionally keen mental qualities or because of mental or physical handicap. This law provides for a department of research and guidance in every school district with a general population of 10,000 inhabitants. The school board of directors of such districts are authorized to establish and maintain such special schools, courses, classes or instruction as they may deem necessary for the proper instruction of such exceptional children and to require the attendance of such children.

PENNSYLVANIA

Health Department Employees Dropped.—Under Governor Pinchot's program of retrenchment, six more employees of the state department of health have been dropped. This number is in addition to the forty-two health department workers dismissed, August 1. In Cambria County only thirteen physicians have been appointed as medical inspectors for the public schools instead of twenty as in previous years. A general reorganization of the state health department will be effected by the dismissals, many workers being shifted from one bureau to another in order to better distribute the work.

Philadelphia

France Honors Dr. Smith.—Dr. Edgar Fahs Smith, ex-provost of the University of Pennsylvania, Philadelphia, has been made an officer of the Legion of Honor by the French government, in recognition of his scientific work and his work in connection with the Pasteur celebration in the United States.

Drive to Aid Negroes.—The recent influx of negroes from the South, some of whom are in need of medical aid and instruction in sanitary measures, has drawn so greatly on the resources of the Frederick Douglas Memorial Hospital and Training School that a campaign to raise funds to continue social service work is necessary. The drive has been endorsed by the pastors of the negro churches of this city.

Street Accidents and Children.—Thirty-eight per cent. of the fatal accidents in the streets of Philadelphia in 1922 and the first seven months of 1923, according to figures compiled by the coroner's office, involved children under 16. One hundred and forty-six children under 16 were killed in 1922, and eighty-nine children in the first seven months of 1923. The figures reveal that many child fatalities occur at home. In 1922, there were 142 children killed by accidents in their homes, and in the first seven months of 1923, there were 112. For 1922, there were 1,087 fatal accidents to children under 16, and 729 deaths in the first seven months of 1923.

RHODE ISLAND

New Community Hospital.—The campaign for $250,000 for the erection of a new community hospital in Westerly closed, August 27, with the sum of $669,761 collected, or 168 per cent. more than the designated amount.

Personal.—Dr. Harold I. Gosline, clinical director and pathologist at the State Hospital for Mental Diseases, Howard, has accepted the position of chief psychiatrist and clinic director to the Child Guidance Clinic, Dallas, Texas.

SOUTH CAROLINA

Typhoid Fever Epidemic.—Twenty cases of typhoid fever have developed in a negro settlement in Florence, it was announced by Dr. Hayden of the state health department. The infection was fly-borne. Three deaths occurred.

UTAH

Graduate Course for Physicians.—A series of graduate lectures by Dr. George Dock, Pasadena, Calif., were given by the committee on education and graduate work of the Utah State Medical Association, from August 27 to September 1. The work comprised six clinical lectures delivered at various hospitals in Salt Lake City.

VERMONT

Anticancer Campaign.—A meeting was held at the University of Vermont College of Medicine, Burlington, August 16, for the purpose of inaugurating an intensive campaign against cancer throughout the state. Educational lectures will be given in the larger cities, pamphlets distributed and articles on the disease will be printed in the public press. Dr. Joseph C. Bloodgood, associate professor of surgery, Johns Hopkins University Medical School, Baltimore, was the principal speaker.

VIRGINIA

"Devil's Grip" Spreading.—Approximately 700 cases of so-called "devil's grip," with three deaths, were reported to the state board of health, August 24. The epidemic is reported to be spreading to the southeastern section of the state (The Journal, Aug. 25, 1923, p. 669).

WASHINGTON

Hospital News.—A new hospital was opened at Omak in July, with accommodation for twenty patients.

Personal.—Dr. Raymond J. Cary has resigned as superintendent of Oakhurst Tuberculosis Sanatorium, Elma, and will reside in Long Beach, Calif.——Dr. Howard L. Hull of U. S. Veterans' Bureau Hospital No. 85, Walla Walla, has been appointed to fill Dr. Cary's position at Oakhurst Sanatorium, and assumed his new duties, September 1.

WISCONSIN

Physician's License Revoked.—The license of Dr. Allan R. Law, Madison, was recently revoked and he was fined $500, according to reports, for performing an illegal operation.

Personal.—Dr. J. Vermeulen, Waupun, has been appointed physician at the state prison by the state board of control to succeed Dr. Wallace P. Smith.——Dr. Edwin D. McKinley, Dodgeville, has accepted a position on the McGill University Faculty of Medicine, Montreal, Canada.

CANADA

Three Million Dollar Hospital for Ottawa.—The contracts have been let for the new building of the General Protestant Hospital, Ottawa, it is announced by Dr. Donald M. Robertson, superintendent. This building will cost $3,000,000.

Insulin Free.—It is reported that the Ontario government has arranged that insulin shall be distributed free of charge on and after September 1 to all diabetic patients who are certified by their physicians as being unable to pay for treatment. The physicians will order insulin from the laboratories of the board of health located throughout Ontario.

Society News.—The seventeenth annual meeting of the Nova Scotia Medical Society was held in Windsor, Nova Scotia, July 3-5. Officers elected were: president, Dr. Owen B. Keddy, Windsor; vice presidents, Drs. Wallace N. Rehfuss, Bridgewater, and John J. Roy, Sydney, and secretary-treasurer, Dr. John G. D. Campbell, Halifax. Dr. David Cheever, Boston, addressed the meeting. The society went on record as favoring a ministry of health.——The Medico-Chirurgical Society of Quebec recently elected Dr. Edward W. Archibald, president; Dr. Samuel Hanford McKee, vice president, and Dr. Frederick H. Mackay, secretary.——At the annual meeting of the Simcoe County Medical Society at Barrie, Ont., July 6, Dr. William J. Scott, Cookstown, was elected president for the ensuing year.——A new county association has been formed in Ontario under the presidency of Dr. Robert C. Chanonhouse, Richmond, known as the County of Carleton Medical Association. Dr. Alonzo B. Hyndman, Carp, is secretary-treasurer.——The first two meetings of the Peel County Medical Society were held, July 5 and July 13, at Brampton, Ont.——At the annual meeting of the Council of the College of Physicians and Surgeons of Ontario, Dr. Eldridge T. Kellam, Niagara Falls, was elected president, and Dr. George R. Cruickshank, Windsor, vice president.——Dr. Henry S. Hutchinson, Toronto, addressed the Stormont and Glengarry Medical Society at Alexandria, Ont., recently, on "The Modern Treatment of Nephritis."

Dalhousie University News.—Two of the new buildings for the Medical Faculty of Dalhousie University, Halifax, Nova Scotia, provided out of the gifts of the Rockefeller and Carnegie foundations, are rapidly approaching completion. The Medical Sciences Building, which houses the physiology, biochemistry, pharmacology and hygiene departments, will be completed in time for the fall session. The second building, the Public Health Clinic, will be finished early in the new year, according to reports. Plans are also practically completed by the provincial government for the addition to the Pathological Institute, and construction will be started in the near future. This new laboratory will be a brick structure 105 feet long by 60 feet wide, three stories high, and will care for the university classes in pathology, the public health laboratory work of the province, and the special work of the Victoria General Hospital. Dr. Albert G. Nicholls, professor of pathology and provincial pathologist, with Mr. W. W. Kenney, superintendent of the Victor General Hospital, recently visited the McGill University pathology building at Montreal, with a view to getting ideas for the new unit.——The fourth class to complete the course in public health nursing was graduated from Dalhousie University, July 13, at a special convocation held in the Medical Building. Dr. Benjamin Franklin Royer delivered the address. Dr. Royer, who has been director of the course since its inauguration, will now retire from this position in favor of the newly established department of health in Dalhousie University, over which Dr. Hattie will preside in his capacity as full-time professor of public health.

GENERAL

America to Aid Japan.—President Coolidge has issued a proclamation asking American aid for the Japanese. Seven American destroyers have gone to Yokohama bearing food and medical supplies for the sufferers in the Japanese earthquake zone. The American Red Cross has appropriated $110,000 for relief work and has made a universal appeal for funds. The Salvation Army has announced that it will raise $5,000,000 for the relief fund.

U. S. Red Cross Refuses to Attend Geneva Convention.—The American delegates to the International Red Cross Conference at Geneva (Col. Ernest P. Bicknell, Colonel Olds and W. G. Pearce), decided, August 30, not to attend the meeting, it is announced from the Paris headquarters. The decision was made on receipt of news that the international conference had approved the suggestion that a committee be appointed to consider fusion of the International Red Cross and the League of Red Cross societies, thus indicating the determination of the conference to pass on the question at the present session, despite the objections raised by the American and other delegations.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Memorial Hospital and the Chicago Home for Incurables, each $100,000; Presbyterian Hospital, Chicago, and the Thornwell Orphanage, Clinton, S. C., each $50,000, and the Canton Christian College, Canton, China, $5,000, under the will of Mrs. Nettie F. McCormick of Chicago.

Beekman Street Hospital (formerly the Volunteer Hospital), New York, $50,233, by the will of Mrs. Mara Nish.

Pipestone, Minn., for the erection of a city and county hospital, $50,000, by C. H. Aston, a banker of Pipestone.

Presbyterian Hospital, Philadelphia, for the support of three free beds, $15,000, by the will of William Mulligan, and $5,000, under the will of Mary A. Clime, to endow a bed.

Culver Union Hospital, Crawfordsville, Ind., $10,000, by the will of Mrs. Sarah G. Wilson.

University of Pennsylvania, Philadelphia, for the establishment of a scholarship, $5,000, and the Hahnemann and Children's Homeopathic hospitals, Philadelphia, each $5,000, by the will of Clara W. Kilpatrick.

Lenox Hill, Beth Israel, Montefiore and the Lebanon hospitals, New York, each $1,000, by the will of Samuel Goldsticker.

New York Medical College Hospital for Women, $500, by the will of Elizabeth K. Upham.

Abraham Jacobi Memorial Fund.—At the St. Louis meeting of the American Medical Association in 1922, the Section on Diseases of Children authorized the creation of the Abraham Jacobi Memorial Fund Committee, for the establishment of a permanent fund for the section. A copy of the yearly transactions of the section is sent free to each contributor; a part or all of the expenses of a foreign guest of the section will be met by appropriations from the fund; pediatric exhibits in the Scientific Assembly of the American Medical Association will be encouraged, and, if advisable, the expense thereof paid from this fund, and wherever possible a grant will be made for the assistance of pediatric research or for charity. A new member of the committee is elected by the section each year to serve five years. The committee elects one of its members as secretary of the fund, and the oldest member in point of service on the committee acts as chairman. The following are the officers of the committee: chairman, Dr. Laurence R. Debuys, New Orleans; secretary, Dr. Frank C. Neff, Kansas City, Mo., and members, Drs. Fritz B. Talbot, Boston; Clifford G. Grulee, Chicago, and Harold K. Faber, San Francisco.

LATIN AMERICA

Practice of Medicine in Colombia.—The *Repertorio de Medicina y Cirugía* of Bogota gives the text of a law recently adopted by the government of Colombia to regulate the practice of medicine. The bill was drawn up by the Academia Nacional de Medicina, and embodies the provisions of most laws of the kind in the majority of countries.

FOREIGN

The Italian Riberi Prize.—The prize this year has been conferred on Prof. Salvatore Salinari for his work on "The Lessons of the World War on Treatment of Wounds of Bones and Joints (Prophylaxis of Infection and Hospital Care and Evacuation)."

Wheat Currency in Hungary.—Owing to the instability of the economic situation in the Hungarian provinces, the Medical Association of Szabolcs has introduced a new system of payment of medical fees. The fee for a consultation in the country districts is to be the current price of 5 kg. of wheat.

Personal.—The Baly Gold Medal of the College of Physicians of London was awarded to Mr. J. Barcroft for his work on physiology.——The Bisset-Hawkins medal, bestowed triennially for work in advancing sanitary science and promoting

public health, has been awarded to Dr. T. M. Legge, London, England.

Public Health Week in Great Britain.—The annual Health Week will take place in Great Britain, October 7-13, under the auspices of the Royal Sanitary Institute. Local celebrations in each center are organized and controlled by local committees in the effort to focus public attention to matters of health and disease prevention.

Funds for Cancer Research.—Under the will of Hugh Fullerton, the sum of $25,000 was recently donated to the Manchester Christie Hospital, England, for research work on cancer. This, with a recent gift of $5,000 by Mr. Todman of Sydney, Australia, will now enable the hospital to supplement the research work on cancer conducted for many years by Dr. C. Powell White.

Institute for Cell Research at Berlin.—Our German exchanges mention that the Institute for Cancer Research at Berlin has opened a special department for cultivation of tissue cells outside the organism, along the lines followed by Carrel and Loeb. The work is in charge of Dr. Rhoda Erdmann, formerly connected with the laboratories of the Rockefeller Institute.

Code Words for Medical Telegrams Changed.—Following the faulty transmission of a code word by telegram, which led to tragic delay in administering diphtheria antitoxin to a child in England recently, the postmaster-general has announced the disuse for such telegrams of the code words for "positive" and "negative," substituting the words "present" and "not found," so that confusion is impossible.

German Society for Occupational Hygiene.—This newly founded Deutsche Gesellschaft für Gewerbe-Hygiene has organized a meeting for general discussion of "Dust in Industries and its Prevention"; "Lead Poisoning and Its Early Detection"; "Chronic Benzol Poisoning," and "Arrangements for Bathing in Industrial and Trade Establishments." This first annual meeting convenes at Würzburg, September 19 and 20, with K. B. Lehmann in the chair. It is proposed to publish a journal as the organ of the association. Membership is open to all interested in the hygiene of industries and trades of any country. The address of the association is Viktoria-Allee 9, Frankfurt a. Main.

Society News.—The twenty-third congress of the French Association of Urology will be held at the Paris Faculty of Medicine, October 10, under the presidency of Dr. André of Nancy, when the treatment of gonococcal infection by serums and vaccines will be discussed by Messrs. Minet and Debains of Paris.——The German Society for Dental Anatomy and Pathology was recently organized with Professor Römer of Leipzig as president.——A National Congress of Physical Education will be held in Bordeaux, September 24-26. The work of the congress will be divided into three sections: (1) physiology, circulation and respiration during exercise; (2) physical education, the dosage of exercise for the child, and (3) choice of sports according to age. Dr. Sigalas, dean of the faculty of medicine of Bordeaux, will preside.——A National Milk Conference will be held in London, November 21, under the auspices of the National Clean Milk Association. Papers will be read on every important aspect of pasteurization.——The twenty-second Flemish Medical Congress was held at Antwerp, August 11-12. Professor Swaardemaker, Utrecht, spoke on "The Physiology of the Heart."——Paris was selected as the place for the third International Congress on Military Medicine and Pharmacy to meet in 1925. The second International Congress on Military Medicine and Pharmacy, which has just concluded its sessions at Rome, was described in THE JOURNAL, July 7, p. 55.——At the final sessions of the Pan-Pacific Science Congress in Sydney, Australia, September 3, it was decided to accept the invitation of the Japanese government to hold the next congress in Tokio in 1926.

Deaths in Other Countries

Dr. **G. E. Rennie,** physician to the Royal Prince Alfred Hospital, Sydney, Australia; formerly editor of the *Australian Medical Gazette.*——Dr. **Frederick Bell** of Humshaugh, England, president of the Newcastle-on-Tyne and Northern Counties Medical Society; of septic laryngitis.——Dr. **C. Girard,** formerly of Montpellier, France, aged 86.——Dr. **C. Oberg,** Hamburg.——Dr. **S. Garten,** professor of physiology at Leipzig, aged 52.——Dr. **Eiler Nielsen,** Copenhagen.——Dr. **F. Widmer,** Winterthur, Switzerland, a leader in public health affairs in his canton, aged 67.——Dr. **P. Chaslin** and Dr. **Salva Mercadé,** both of Paris.

Government Services

Army Medical Post Celebrates

The twenty-fifth anniversary of the capture of Manila by the U. S. Army, Aug. 13, 1898, was celebrated by the medical post at the Army and Navy Club, Chicago, August 13.

Coming Meeting at Carlisle Barracks

In connection with the annual meeting of the Association of Military Surgeons of the United States at Carlisle Barracks, Pa., October 4-6, accommodations for members of the association at the first service school have been announced as follows: Room, bed, bedding, towels, bedroom service and laundry, 50 cents per day. Mess and dining-room service, $1.50 per day. Bedding rolls need not be brought, and either uniform or civilian clothes may be worn.

The tentative program is:

October 4: Demonstration of new equipment for medical troops and units.

October 5: Demonstration of medical aid from the firing line back to the field hospital.

October 6: Presentation of papers; election of officers.

International Federation of War Veterans

The fourth congress of the International Federation of War Veterans was recently held in Brussels, Belgium, and the program which the American delegation presented was as follows:

1. Support of the international court of justice.
2. Codification of international law.
3. Education in the United States of a certain number of British, French, Italian and other youths of the allied nations, and reciprocal advantages for American students in those countries.

Chemical Warfare School

Instruction of a new class at the Chemical Warfare School, Edgewood Arsenal, Md., will begin, September 14, and continue for two months.

Hospital Authorized

Pursuant to instructions of the Secretary of War, the organization of General Hospital No. 32 (Indiana University School of Medicine Unit, Indianapolis) organized reserves, has been authorized.

Physical Examinations for Government Employees

A uniform program for the physical examination of all new entrants in the employment of the federal government has been inaugurated by the Civil Service Commission. All persons about to enter U. S. government service will be required to take a physical examination to be made by physicians in the U. S. Public Health Service. Heretofore, when a person entered the service, he submitted a sworn statement that he was in good health, or, in many cases, a medical certificate from his physician. The need has long been felt for expert examining boards under governmental supervision to make physical tests and keep a permanent record of each applicant's condition from the time he entered the service. The increasing liability of the government under the provisions of the employees' compensation and retirement laws has emphasized this need. The new order will make it possible to provide against the employment of persons whose physical condition might be a menace to their fellow workers. Employees will also be guarded against the danger of assignment to duties not in keeping with their physical condition. If physical defects or incipient disease is found, employees will be directed to their own physicians for care and treatment. The policy applies not only to new employees of the government, but also to such "employees as may be requested by the Civil Service Commission." Because of the great number of employees involved and the limited facilities of the U. S. Public Health Service, the adaptation of the policy to the government service in general must be gradual, it is explained by the Civil Service Commission. The policy is based on an executive order by the late President Harding, which reads:

> With the view of promoting health and efficiency and of minimizing accidents among federal employees, the Surgeon General of the U. S. Public Health Service is authorized and directed to make such physical examinations of applicants and employees as may be requested by the Civil Service Commission, and shall keep the commission advised of the localities where medical officers are available for duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 18, 1923.

Effects of Diet on the Structure of Teeth

Mrs. May Mellanby, whose work in connection with her husband on the dietetic causation of rickets is well known, described researches which she had made for the Medical Research Council on the growth of teeth in dogs. These showed that the amount of calcium in the diet was not the dominant factor in the calcification of teeth. The important point was the content of vitamin A, which, taken in large amounts, retained and incorporated in the tissues of the body, especially the teeth, the calcium salts in the diet. If this vitamin was deficient, the more cereal eaten the worse formed were the teeth. Both dentin and enamel were very defective on a diet of oatmeal, but when cod liver oil, rich in vitamin A, was added, these tissues were practically normal. The calcium and phosphorus of the diet did not themselves control teeth calcification; their action was subservient to other elements of the diet. The effect of oatmeal on the formation of the teeth raised the question of the excellent teeth of the Highlander at a time when this food formed a large portion of his diet. No doubt the calcifying vitamin of the herring would play an important part. Milk would also antagonize the action of oatmeal. Thus, a diet of milk, eggs, green vegetables, herring and oatmeal would be expected, on the basis of the experimental results, to produce perfectly normal teeth. On the other hand, a dietary of cereals, especially oatmeal, with such food as vegetable margarin, lard, lean meat, jam, sugar and tea, all widely used in modern dietaries, would lead to defective teeth and jaws.

The Falling Birth Rate

The Registrar-General's returns for the June quarter of the present year show that it has been one of the healthiest. The death rate was 12 per thousand, against 12.6 for the same quarter of the previous year. The infant death rate was still better; it fell to the remarkable figure of 66 per thousand births, which is 18 below the average of the preceding second quarters and the lowest on record. Against this must be set the falling birth rate, which was 20.7, and the lowest recorded in any second quarter except during the period of the war. The decline of the birth rate, which has frequently been pointed out in previous letters, is shown by the figures for the second quarters of 1920-1923: 26.6, 23.9, 21.1 and 20.7. The natural increase of population by excess of births over deaths was 82,791. The smallpox epidemic gave rise in this quarter to 707 notifications of the disease, of which 249 occurred in Gloucester. Of the Gloucester cases, eighty-three were notified as chickenpox. The London death rate reached the low figure of 10.8, which was lower than that of the general rate for England and Wales, and justifies the assertion that the metropolis is one of the healthiest parts of England.

The Pasteurization of Milk

Dr. J. M. Hamill, medical officer to the ministry of health, has made an official report on the pasteurization of milk, showing the part it may play in securing a satisfactory milk supply. The method recommended is exposure to a temperature between 145 and 150 F. for thirty minutes. This destroys any pathogenic organisms present without appreciably changing the physical and chemical characters of the milk. *Bacillus tuberculosis, B. diphtheriae, B. dysentericus, B. typhosus* and other organisms of the typhoid-paratyphoid group are destroyed. A small proportion of tubercle bacilli may escape destruction, but their virulence appears to be so reduced as to render them harmless. Certain strains of streptococci may also survive, but those believed to be responsible for septic sore throat are destroyed. The nonpathogenic organisms present are not entirely destroyed, but are reduced by as much as 99 per cent. The taste and flavor of the milk are hardly altered. The effect on the vitamins is important. Milk is rich in fat-soluble A vitamin, but also contains water-soluble B and the antiscorbutic (C) vitamin. Pasteurization has practically no effect on fat-soluble A and water-soluble B, but the antiscorbutic vitamin seems to be weakened. Destruction of vitamins appears to be due to oxidation, and is accelerated by the presence of air, which therefore should be excluded. A milk supply obtained from perfectly healthy cows under the cleanest conditions and consumed immediately with the least possible handling would be ideal. But such milk must be limited in amount, and its cost would be prohibitive to the average consumer. As England is a highly urbanized country, much of the milk supply has to be transported considerable distances, a circumstance unfavorable to its keeping qualities and often resulting in considerable loss by souring. Pasteurization may be regarded as a factor in the extension of the consumption of milk by urban dwellers. Extensive experience of the feeding of children on pasteurized milk goes to show that it is as well borne by them as raw milk, and except in regard to antiscorbutics, it appears to be equally nutritious.

The Notification of Tuberculosis

The minister of health has addressed a circular to all physicians, stating that his attention is constantly being called to the failure of some of them to notify tuberculosis. In certain districts, more than 40 per cent. of the persons dying from tuberculosis had not been previously notified as suffering from the disease. Under the tuberculosis regulations of 1913, it is the duty of every physician within forty-eight hours of becoming aware that one of his patients is suffering from tuberculosis to notify the case. The minister appreciates that there are difficulties in the notification of tuberculosis which do not arise in the other infectious diseases, and that some patients do not consult the physician until the disease is advanced. He also recognizes that in the early stages it may be difficult to arrive at a definite diagnosis, and that physicians naturally are reluctant to notify before the disease is definitely diagnosed. But he points out the necessity, in the interests of the patient, of arriving at a diagnosis in all doubtful cases as early as possible. Under the tuberculosis schemes of local authorities, facilities are provided for assistance in diagnosis, including the services of a tuberculosis officer for consultation. It is also pointed out that prompt notification of all cases of tuberculosis is of importance in the interests of the community as well as of the patient. Only thus can full cooperation between the physician, the health officer and the district tuberculosis officer be secured, in order that all possible steps may be taken to prevent the spread of infection and discover other possible cases that may have been in contact with the patient.

Sir John Bland-Sutton, President of the Royal College of Surgeons

Sir John Bland-Sutton has been elected president of the Royal College of Surgeons. The choice is peculiarly happy. The college may be regarded as a shrine to the memory of John Hunter. Its museum, the finest in the world, is but an expansion of Hunter's collection. In "Hunterian orations" and "Hunterian lectures," delivered there, the leaders of British surgery never tire of singing his praises and showing that he was the father of scientific surgery, from whom all

progress springs. His method was to study all life, normal and abnormal, human and animal, so that the facts illuminated one another. Time was when our great surgeons did this and were "naturalists," to use an old-fashioned word which has passed out of use, because in this age of specialism men now concentrate on a single subject. Bland-Sutton is the last of our surgeons to carry on the Hunterian tradition. Anatomist, comparative anatomist, pathologist, comparative pathologist, naturalist and traveler, he stands alone in the breadth of his outlook on surgery. Since boyhood he has been intensely interested in the anatomy of animals and has seized every opportunity of dissecting them. When at 22 he entered the Middlesex Hospital, he had the unique distinction of being appointed prosector in his first year. In 1881 he was appointed pathologist to the Zoological Society, and soon became famous for his contributions to comparative anatomy, describing the tumors and other lesions that he found on dissecting the animals who had died in the Zoological Gardens.

His versatility is shown by mentioning a few of the most important of his many publications: "Ligaments: Their Nature and Morphology," "Evolution and Disease," "Tumors, Innocent and Malignant," "Gallstones and Diseases of the Bile Ducts," "Man and Beast in Eastern Ethiopia," "Fibroids of the Uterus" and "Injuries of Bones and Limbs by the Bullet." His interest in pathologic research is so great that he made the munificent donation of $75,000 to the Middlesex Hospital to build and equip a new museum and pathologic institute, which is now known as the Bland-Sutton Pathological Institute. Truly, if the shade of the great Hunter could visit the college which commemorates his work, he would declare that no one more worthy had ever occupied the presidential chair.

Compensation and the Prevalence of Miners' Nystagmus

The humanitarian legislation that provides compensation for workmen incapacitated by accidents or disease arising in the course of their employment is greatly abused in this country, and in many cases is a premium on idleness. Unfortunately, all our political parties seem afraid to stand up sufficiently against the loud throated "labor" leaders who advocate anything that puts money into the workman's pocket regardless of the resulting injury to the community, including the very class they desire to benefit. An illustration is supplied by the report of the Miners' Nystagmus Committee of the Medical Research Council. The committee consisted of well-known experts, such as Drs. J. S. Haldane and T. L. Llewellyn. They find an enormous amount of *compensated* incapacity from miners' nystagmus in this country as compared with France, Belgium and Germany. This is due not to an increase in the number of those affected but to an increase in those obtaining compensation, which is due to three causes. In 1913 the nomenclature of the disease was altered in the official schedule from "nystagmus" to "the disease known as miners' nystagmus, whether oscillation of the eyeballs be present or not." The result was to include cases in which compensation was claimed for psychoneurosis. Further, the maximum compensation was raised from $5 to $9 a week, and while wages and the cost of living have fallen, this compensation has remained the same. It is therefore not rare for miners disabled by some general disease not arising from their work to be obtaining compensation for nystagmus. Finally, only severe cases of nystagmus are admitted for compensation abroad, while in this country slight cases are accepted under the belief that any oscillation of the eyeballs renders the miner unsuitable for underground work and tends to get worse if the work is continued. The result of all this is that both the number of claims and the duration of the incapacity have been greatly increased. The committee finds that the compensation is in many cases unnecessary, as mild forms do not necessarily incapacitate and, indeed, often go on for years without the knowledge of the patient. The conclusion is that most patients are only partly incapacitated and would benefit physically and psychologically by work. Some require work above ground; others are firm for suitable work below ground.

PARIS

(From Our Regular Correspondent)

Aug. 10, 1923.

The Compulsory Notification of Syphilis

For some time there has been agitation in favor of the compulsory notification of syphilis, in view of which the *Bulletin médical* opened an inquiry on the subject. Many replies were received by this journal, all, save one, opposing such an innovation. Dr. Filderman alone declared himself an advocate of notification, which, he recommends, should be anonymous; every syphilitic should be given a number by which he shall be notified to the public authorities. The name of the patient would not be divulged unless he refused or wofully neglected treatment.

Among the responses published by the *Bulletin médical*, that of Dr. Brocq, honorary physician to the Saint Louis Hospital, deserves particular attention. Brocq readily admits that the interests of the community should take precedence over the rights of the individual. When the state of health of an individual may endanger the health of those with whom he comes in contact, it becomes not only logical but also the duty of society to watch over him, to treat him and, if necessary, to isolate him. Brocq, however, refuses to admit that medical practitioners should be compelled to report contagious diseases among their clientele of which they learn strictly in confidence. He suggests that the heads of families should be required to notify the public authorities of the existence of a contagious disease as soon as it is diagnosed by the physician.

Holding, as he does, this opinion with reference to contagious diseases in general, Brocq is even more strongly opposed to the compulsory notification of venereal diseases. He refers to the tragic death of the surgeon Delpech, professor in the medical department of the University of Montpellier, who was murdered in 1832 by a young man who immediately afterward committed suicide. The young man, one of his patients, was infected with syphilis but became engaged to a young woman of the surgeon's acquaintance. Delpech demanded that the young man should not marry the woman, but the patient refused to accept this advice. Delpech accordingly informed the woman's family of the state of affairs and the engagement was broken; hence the tragedy. "Our country has not changed," Brocq adds; "it is still the land of Delpech."

Brocq thus emphasizes his belief that the conception of privileged communication depends on the mentality of a people. There are some nations that attach very little practical importance to the doctrine of privileged communication. In France, however, he holds that this law is unassailable. It involves an oath of absolute silence tacitly taken by the physician, and obligates him toward the family into which he is introduced. Such an oath is inviolable, for it is based on the blind and complete confidence of the patient in his physician.

The difference between French and American medical mentality, to which I have previously called attention (The Journal, July 15, 1922, p. 228), finds vivid expression in the response of Dr. Carle of Lyons, who emphasizes that we must not forget that we are neither Slavs nor Scandinavians—nor even Anglo-Saxons. In France, if a law or ordinance is found after passage to be entirely inapplicable, a tacit agree-

ment between the public and the authorities is soon reached and no further attention is paid to it. Carle regards this mentality, characteristic of the Latin race, as both practical and subtle. Some may be inclined to doubt its practical value when it paralyzes the progress of public health.

A more serious objection has been raised. In the present state of society, compulsory notification of syphilis would have the effect of keeping syphilitics away from consultation services and also from the offices of reputable physicians, and would cause them to resort to quacks, to the great detriment of their health.

The Scholar According to Charles Richet

The Hachette publishing house has begun the publication of a series of books entitled "Les caractères de ce temps" (Types of today) the various volumes of which will outline "the essential types of men that personify and go to make up the France of today." The first of these volumes, "Le Savant," is from the pen of Dr. Charles Richet, professor of physiology in the medical department of the University of Paris.

Many will contest the validity of Richet's definition of the savant. As he views it, the main characteristic of the savant is, that his work is not directed toward a practical end. The physician and the surgeon are not savants, since they are looking for something besides mere knowledge. Richet holds that Laënnec was not a savant, in spite of the fact that he discovered auscultation.

Be the definition what it may, the savant, as described by Richet, presents some rather amusing aspects. Savants are of the same clay as common mortals, he says; no better and no worse. However, they have certain peculiar virtues. For them science is a religion, and money is no object. They are absolutely honest—much more so than the members of other professions. But when they become absorbed in research, they have a tendency to neglect their professorial duties. After the vacations, they postpone as long as possible the resumption of their courses, and toward the end of the semester they close their lectures as soon as decency will permit. With their virtues they have some faults; they are susceptible, sensitive and jealous, and generally have a little more than the average stock of vanity.

Whereas in America and England, according to Richet, the great scholars are men of the world and make a good appearance in a drawing-room, in France the savant has often remained a timid creature—absent minded, inattentive—unable to discuss with animation any topics other than his specialty. He is usually decently dressed, but his attire often shows lack of attention. He generally resides in the quarter of the town in which the schools are located; of fifty members of the Institut de France, which comprises five academies: the Académie française, the Académie des sciences, the Académie des inscriptions et belles-lettres, the Académie des sciences morales et politiques, and the Académie des beaux-arts (but not the Académie de médecine), nineteen live in the fifth ward and sixteen in the sixth.

From the standpoint of scientific productivity, the mathematicians are the most precocious, since worth-while intellectual production begins with them, on the average, at the age of 25. In other fields, intellectual production begins at about the age of 35. As a rule, inventiveness decreases rapidly with age. After the close of the fifth decade, savants seldom present anything new; all they produce will be found to be a restatement of their older ideas. Victor Hugo, Voltaire and Goethe were sublime exceptions.

Tuberculosis in Rural Districts

Dr. Viarnaud of Sainte Terre, department of the Gironde, has called attention to his observation that, during recent years, the course of tuberculosis in the rural districts tends to become more and more accelerated. He states that he has noted numerous cases of rapid breakdown of the lungs in young men and women free from any familial defect. In the *Gazette hebdomadaire des sciences médicales de Bordeaux*, Prof. J. Sabrazès of Bordeaux gives an explanation of the increasing malignity of tuberculosis in rural communities. Formerly the inhabitant of a rural district lived more in the open air. His house—loosely constructed—sheltered him only at night. Nowadays, with the advent of increased prosperity, he is much more shut in. He therefore becomes more easily inoculated if there happens to be a tuberculous person under his roof. The inhibitive action of the sun on the causative organisms is reduced in the same proportion. Then, again, the peasant in the earlier days lived a more solitary life, seldom seeing any one outside his own family. Today he has become more gregarious. He is exposed to the unhealthy atmosphere of the cabaret and the motion picture theater—of crowds gathered at athletic contests, political meetings and the ever recurring local fairs and festivals. Tuberculous persons discharged from the army have also contributed to the dissemination of the disease.

The Epidemiology of Cholera

At one of the recent meetings of the Société de médecine publique, D. K. Zabolotny, a Russian professor spending a short time in Paris, communicated the results of epidemiologic researches on the recent outbreaks of cholera in Russia and Ukraine.

In Petrograd, during the epidemic of 1918, from 500 to 700 cases developed daily. As a result of the blockade, there was no bread, and the population was living on salted herring and was drinking infected water. During this epidemic, a peculiar type of bacteria carrier was demonstrated. Vibriones were not always present in the stools, but the external surface of their bodies was infected. Cholera bacilli were found on the hands of 10 per cent. of the hospital personnel. Lack of soap and water explained the persistence of this contamination of the hands. The epidemic of 1920-1921 was characterized by the spread of foci of infection throughout the country, not only in the cities but also in the villages.

The acme of the epidemic was reached in most sections during the months of July and August. The preservation of a connection during the intervals between epidemics is explained by the existence of bacteria carriers during the quiet intervals. There were a great number of healthy bacteria carriers during the epidemic of 1920-1922. At Odessa, in 1922, in addition to 3,000 patients with the disease, 1,500 healthy bacteria carriers were demonstrated. The probable cause of the epidemic at Odessa in 1922 was the infection of foodstuffs by flies, which multiplied in enormous numbers in the neglected deposits of manure and rubbish. The bad condition of the sewerage and the contamination of the streets by fecal matter owing to the lack of water favored the propagation of the epidemic, which ceased with the coming of cold weather and the consequent disappearance of the flies.

Last year, immunization with killed bacteria by mouth was tried on a large scale. Doses of from 10 to 20 c.c. of vaccine, corresponding in weight to from 0.05 to 0.10 gm. of dried bacteria, were borne without any reaction. In the serum of persons thus treated, an increase in the titer of agglutinating and bactericidal power was noted. Zabolotny holds that peroral inoculation, which is more simple and more convenient than subcutaneous inoculation, deserves to be studied to a much wider extent, in order to determine the prophylactic value of the method.

Vital Statistics for France

During the first quarter of the current year, there were registered in the ninety departments of France: 196,105 births

(living infants); 190,036 deaths (19,014 infants under 1 year); 70,656 marriages, and 5,666 divorces. The excess of births over deaths, during the first three months of the year, was exceedingly low—6,069.

In the department of the Seine, there were reported, between January 1 and March 31: 19,444 births, 18,830 deaths (an excess of 614 births), 11,322 marriages and 1,432 divorces.

In Paris alone, the figures for the first quarter are: 14,489 births, 13,178 deaths (an excess of 1,311 births), 7,947 marriages and 1,048 deaths.

PRAGUE

(From Our Regular Correspondent)

Aug. 4, 1923.

Mental Hygiene

The mental hygiene movement in the Czechoslovak Republic has received an important contribution in the book entitled Protection Against Mental Diseases, by Dr. Jaroslav Stuchlik. Heretofore this has been a neglected field in the public health movement in the Czechoslovak Republic. Dr. Stuchlik, the chief physician in the state insane asylum in Kosice, explains in the introductory part of the book the aims of the mental hygiene movement, which is just as important as the campaign against infectious and social diseases, but is far less spectacular. Its great advantage, as compared with other public health campaigns, lies in the fact that it does not involve large expenditures of money. The first part of the book deals with the different diseases of the brain, which are grouped, not according to the clinical forms, but according to their etiology. There are chapters on congenital brain diseases, and diseases resulting from infectious diseases, from intoxications and from trauma. On the basis of his large experience, he also estimates the probable results of treatment, which should be begun as early as possible. There are many notes and explanations from the field of biology, psychology, heredity and sociology because the book is intended not only for physicians but also for the intellectual class of the public. At the same time, the author has issued a popular brochure on the same subject which was written for the general public with the object of rendering the mental hygiene movement popular.

Postgraduate Instruction

The ministry of health will continue this year to organize postgraduate courses for practicing physicians in cooperation with the Charles University of Prague. These courses, which have been given now for three years, have been attended with great success. Only physicians who have been practicing medicine for more than three years outside a public institution are eligible for the courses, which are given free of charge. The program of lectures is variable, comprising both theoretical and practical subjects. Each branch of medicine aims to present to its audience the recent developments in the science and their application to medical practice. In addition, the ministry of health offers scholarships to physicians from poorer districts in order to make their stay in Prague during the courses possible.

Books on Dermatology and Venerology

Dermatology and venerology constitute one branch of medicine with a complete scientific literature written in the Czech language. Only a year ago the second issue of Venerology, by Prof. V. Janosky, appeared, and recently another handbook of venerology was completed by Prof. Jaroslaw Bukovsky, which was started by Prof. F. Pecirka but was interrupted by his sudden death. The latter book is accompanied by an atlas with excellent reproductions of stereoscopic pictures. Prof. F. Samberger, who is issuing an atlas of dermatology in parts, has published the second volume of his Dermatology, which involves his new system of dermatologic diagnosis. Dr. Hynek Pelc also issued recently a study, entitled On Venereal Diseases in the Czechoslovak Republic, which is not only a survey of the arrangements for the campaign against venereal disease but also an analysis of statistical data on these diseases which were collected through the experimental reporting of these diseases. This book was also published, in abstract, in English.

BUENOS AIRES

(From Our Regular Correspondent)

July 15, 1923.

University Conditions

Discipline is gradually being restored, and the frequent and disturbing elections are being eliminated in all Argentine universities. Students are coming to realize that they go to college to be taught, and not to control and guide its policies. The Cordoba and Rosario universities have returned to normal conditions, but the problems of the Buenos Aires University are still to be solved. A recent conflict caused the resignation of the law school authorities. Not long ago, a majority of the professors in the medical school requested an amendment to the regulations providing that the majority of the executive board should be professors—at present they are in the minority—and that students should have no voice in the election of the professorial members of the board. As this plan was not even considered, a complaint was filed by the sponsors of the amendment before the superior board of the university. As a result, the executive board of the medical school and the dean tendered their resignations. The students then held public meetings asking that the resignations be not accepted and that the complaint be withdrawn. They succeeded in carrying both points, but the executive board of the school, as soon as reinstated, submitted a plan for reforms that is larger and even more radical than the previous one. This time the students have not protested. A reform of existing regulations is now pending, and discipline will doubtless be improved.

Tuberculosis Dispensary

The Argentine tuberculosis league has opened a new dispensary that was presented by Miss Eloisa Juarez Celman and Miss Victoria Aguirre. This will be the eleventh dispensary in Buenos Aires. The generosity of the donors is noteworthy, as private gifts are not so common in this country as in the United States. The new dispensary will be in charge of Dr. E. Paz.

Leprosy Conference

A national conference on the prevention of leprosy was held at Paraná, Entre Rios. A number of resolutions were adopted, and many speeches were made. It is hoped that something practical will come out of the proceedings, especially as subsequent activities will be directed by Prof. M. Aberastury.

Public Health Centralization

The national government has submitted to congress an important bill transferring hospitals, asylums, colonies and all public welfare work to the interior department, which already supervises the national health bureau and the labor bureau. This important measure may be considered as a far-reaching step toward the creation of a public health department.

Personal

Dr. Teofilo Lecour, president of the National Public Health Department, has been appointed Argentine consul at Antwerp. The vacancy thus caused will be filled shortly. The most prominent candidate is Dr. G. Aráoz Alfaro.——Dr. P. Chutro, professor of clinical surgery, has left for Europe.——Dr. J. J. Vitón and Dr. A. R. Marotta have been appointed professors

of medical pathology and clinical surgery, respectively. Dr. Gonzalo Lafora of Madrid is delivering a series of lectures on neurology, psychiatry and psychanalysis.

Gas Gangrene

In addition to the organisms that cause gas gangrene commonly in Europe, a variety of *Sporogenes* has been isolated here in several cases that is highly pathogenic. Dr. A. Sordelli has studied this organism and has prepared a polyvalent antigangrene serum for this bacillus and *Bacillus welchii, B. oedematiens* and *B. histolyticus.*

BERLIN

(From Our Regular Correspondent)

Aug. 11, 1923.

Convalescents' Serum in Measles

April 24, the prophylaxis of measles was the subject of special discussion in the Prussian Central Public Health Bureau, under the chairmanship of the ministerial director, Gottstein. All present agreed that convalescents' serum possesses great value in the prophylaxis of measles, particularly for children under 4 years of age, who are especially endangered by this disease. It was decided that it would be well to establish centers where this serum could be collected and from which it could be distributed to physicians, children's clinics, crèches and homes for infants and young children, in case of an outbreak of measles or whenever protection of the children against measles should become necessary. All opposed the establishment of a state bureau of distribution, recommending rather that centers be opened in the public health and welfare bureaus of the larger cities. To these centers the hospitals of the neighborhood could furnish the serum and from these centers the surrounding district could be supplied. General practitioners could greatly aid such centers by sending to the hospitals patients (children more than 4 years old) who could be used as serum donors, and also by instructing parents in the value and use of the serum. Welfare centers could also assist materially in the education of the public.

A Health Passport

Prof. R. Martin, anthropologist at the University of Munich, recommends that all growing children be required to have a health record book (*Gesundheitsbogen*) and that they be issued a health passport (*Gesundheitspass*) showing at a glance the development of the growing body and its capacity. Whereas school physicians have hitherto taken note only of the abnormal, examination desired by Martin deals with the normal. Through weights and measurements the constitutional capacity of the subject would be established, which would be, at the same time, an "exact expression of his physical value." Martin's efforts are directed toward providing every one with the best opportunities for physical development and performance. The foundation for this lies in a thorough physical examination. From a large number of observations, Martin holds, it is possible to establish norms for the various ages and the distinctive types of person that have developed, partly on the basis of race mixtures. The health passport that would be issued to every school child would give a clear insight into his physical value, so that, at any time, a balance could be readily drawn with reference to his health and capacity. Martin plans, with the aid of teachers and athletic clubs, to introduce his researches throughout Bavaria, and recommends that the following weights and measurements be taken: stature, body weight, length of the anterior trunk wall, length of the arms and the legs; girth of chest, upper arm and thigh; horizontal circumference of the head, the maximal length and breadth of the head, the minimal breadth of the forehead; color of the eyes, hair and skin, and the relative grip of the hand. The measurements are taken with a specially constructed anthropometer. The average of the weights and measures of one hundred children of the same age taken during the same season will furnish a graphic record that will be of the greatest value not only from the point of view of race hygiene but also from the standpoint of national economy. Every individual will be told the objective standard of physical worth for which he should strive, and this will constitute an incentive to the attainment of the highest capacity and performance. Martin's system is also of great value in connection with vocational guidance.

Condition of Health of German Children

The Bureau of Husbandry of Thuringia instituted recently an inquiry into the health of the population of Thuringia. From the report, the following items are taken: In the district of Altenburg, in purely rural communities, from 11 to 12 per cent. of the children are undernourished; in the industrial regions, more than 30 per cent.; in the city of Altenburg, in the primary and grammar schools, from 26 to 27 per cent., in the higher schools from 23 to 24 per cent., among adolescents (estimated) from 15 to 20 per cent. In the towns of Wasungen and Schwalungen, the number of undernourished persons is at least 50 per cent. In Greiz, more than half of the school children are under weight and stunted in growth. From the district of Sonneberg it is reported that this year's school entrants, who were born during the year 1915-1916, are especially weak, small and undernourished. It may be said of almost all that they are below the average or undernourished, and that many lack firm bone development, indicating a tendency to rickets. In Gera, the number of children suffering from scoliosis has almost doubled. From Gerstungen is reported a marked spread of scrofula (almost 50 per cent.). In this town there is great lack of milk for infants and young children. Tuberculosis is without doubt increasing, and persons who have not yet reached full growth are affected especially, as most older tuberculous persons have succumbed to the disease. The bad conditions are due not only to undernourishment but also to lack of fuel and clothing. Especially pathetic are the reports from the districts adjoining Saxony, where the textile workers are suffering from lack of employment. In Eibenstock it is stated that only from 2 to 3 per cent. of the children are normally developed.

Marriages

IRA LUTHER HOUGHTON, Baltimore, to Miss Alice Estelle Stearns of Fredericksburg, Va., September 4.

RICHARD J. MILLER to Miss Katherine Vandervort Fahnestock, both of Harrisburg, Pa., September 4.

EDWARD F. SHAY, Fall River, Mass., to Miss Elizabeth O'Gorman of Providence, R. I., August 25.

ALEXANDER HERBERT BARNETT to Miss Margaret Gertrude Severs, both of Chicago, August 22.

EDWARD W. WATKINS, JR., Ellijay, Ga., to Miss Bessie McLeod of Quitman, August 8.

MELDRUM KEPLINGE WYLDER to Miss Esther Rost, both of Albuquerque, N. M., June 1.

WILLIAM E. SAMPLINER to Miss Ruth Lawrence, both of Cleveland, August 25.

FRANK SCOTT GIBSON to Miss Louise Holtkamp, both of Cleveland, August 28.

JULIUS G. LEVY to Miss Elizabeth Lashensky, both of Chicago, August 2.

GEORGE EVERSON to Mrs. Ida De Groot, both of Brooklyn, July 2.

Deaths

James Robb Church ✠ Colonel, M. C., U. S. Army, retired, Washington, D. C.; Medical Department of Columbian University, Washington, 1893; aged 57; died, August 29. Dr. Church entered the regular army in December, 1898, as assistant surgeon and was retired from service for physical disability, Jan. 12, 1918. He was awarded the congressional medal of honor, having been recommended by the late President Roosevelt for distinguished services with the Rough Riders in Cuba. Colonel Church was secretary-treasurer of the Association of Military Surgeons of the United States and editor of the *Military Surgeon* at the time of his death.

Jackson Robert Campbell, New York; Bellevue Hospital Medical College, New York, 1884; for thirty-seven years physician to the Department of Correction; served in the M. C., U. S. Army, during the World War; formerly on the staff of the Fordham Hospital; aged 64; died, August 20, of cerebral hemorrhage, at the home of his daughter in Rye.

James Leonard Corning ✠ New York; University of Wurzburg, Germany, 1878; member of the New York Neurological Society; on the staffs of the Hackensack, St. Francis and St. Mary's hospitals; author of "Carotid Compression," "Local Anesthesia," and other works; aged 68; died, August 25, at his summer home in Morristown, N. J.

Leon Louria ✠ Brooklyn; University of Moscow, Russia, 1888; on the staffs of the Brownsville and East New York Hospital, the Rockaway Beach (N. Y.) Hospital, the United Israel Zion Hospital and the Jewish Hospital, where he died, August 27, aged 59, of pneumonia following an operation on the gallbladder.

William Earl McKinney, New York; University of Louisville (Ky.) Medical Department, 1914; served in the M. C., U. S. Army, with the rank of captain, during the World War; intern at the Manhattan Eye, Ear and Throat Hospital, where he died, August 20, aged 31, of pneumonia.

Richard Wiggin Dake ✠ Nashville, Tenn.; Vanderbilt University Medical Department, 1903; served in the M. C., U. S. Army, with the rank of captain, during the World War; on the staff of the Woman's Hospital; aged 43; died, August 14, of pneumonia, at Cumberland, Md.

Fleet William Brock, Bogalusa, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1907; on the staff of the Elizabeth Sullivan Memorial Hospital; aged 42; was killed, August 21, when the automobile in which he was driving overturned.

Charles M. Brooks, Philadelphia; Hahnemann Medical College of Philadelphia, 1878; member of the Philadelphia Academy of Surgery; for twenty-two years on the staff of the Women's Homeopathic Hospital; aged 68; died, August 17, of cerebral hemorrhage.

William Franklin Ernest, Miami, Fla.; University of Louisville (Ky.) Medical Department, 1890; formerly a practitioner in Chicago, and on the staff of the Hospital for the Insane, Danville, Pa.; aged 65; died, August 29, of cerebral hemorrhage.

Trumbull Williams Cleaveland, New York; Medical Department of the University of the City of New York, 1884; member of the Medical Society of the State of New York; aged 76; died, August 25, of pulmonary edema.

M. Augusta Fairchild, Los Angeles; New York Hygeio-Therapeutic College, New York, 1861; formerly professor of gynecology at St. Louis Medical College; aged 89; died, August 13, of carcinoma of the liver.

Orion Jonathan Fay, Carleton, Mich.; University of Michigan Medical School, Ann Arbor, 1882; aged 62; died, August 17, at the University Hospital, of a skull fracture, received when thrown from an automobile.

Erwin George Seybold, Boston; Medical School of Harvard University, Boston, 1923; intern at the Peter Bent Brigham Hospital; aged 24; was drowned while bathing, August 23, in Lake Chauncey, near Westboro.

Richard C. Lyon, Naylor, Mo.; Memphis (Tenn.) Hospital Medical College, 1898; member of the Missouri State Medical Association; aged 61; died, August 4, in his office, at St. Louis, of cerebral hemorrhage.

Robert Hamilton Mackerras ✠ Pasadena, Calif.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1903; for ten years health officer of Sierra Madre; aged 45; died, August 16.

Martha A. Bonnell, Bradentown, Fla.; Hahnemann Medical College and Hospital, Chicago, 1897; formerly a practitioner in Chicago; aged 82; died, August 23, of gangrene of the intestine.

Elisha Aloney Rust, Moira, N. Y.; University of Vermont College of Medicine, Burlington, 1876; member of the Medical Society of the State of New York; aged 71; died, August 19.

Egerton R. Switzer, Salina, Kan.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1865; formerly county coroner; aged 86; died, August 16, of senility.

Elmer Small, Belfast, Me.; Medical School of Maine, Portland, 1870; member of the Maine Medical Association; formerly mayor of Belfast; aged 77; died, August 13.

William Church Griswold ✠ Brooklyn; Albany (N. Y.) Medical College, 1897; aged 50; died suddenly, August 23, at his summer home in Seneca Lake, N. Y.

Amos Babcock, New Hampton, Iowa; Rush Medical College, Chicago, 1868; Civil War veteran; aged 78; died suddenly, August 23, of mitral regurgitation.

Denton W. Rudgers, Independence, Mo.; University of Buffalo Department of Medicine, 1879; aged 67; died, August 18, at Yankton, S. D., of heart disease.

Frederick William Macpherson, Lynn, Mass.; Medical School of Harvard University, Boston, 1871; aged 74; died, August 20, in Moncton, N. B., Canada.

James A. Manley, Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1884; also a pharmacist; aged 63; died suddenly, August 16, of heart disease.

Monzell M. Hoff ✠ Philippi, W. Va.; University of Maryland School of Medicine, Baltimore, 1889; aged 64; died, August 19, of heart disease.

Jesse Milton Coburn ✠ Norwalk, Conn.; Boston University School of Medicine, 1878; formerly mayor of South Norwalk; aged 70; died, August 13.

Leo Francis English, New York; Baltimore Medical College, 1907; aged 45; died, August 22, at a hospital in Detroit, of an overdose of drugs.

Gideon P. Kidd, Roann, Ind.; Chicago Medical College, 1874; aged 75; was found dead in his garden, August 21, of cerebral hemorrhage.

Joseph M. Stephenson, Chillicothe, Ohio; Physio-Medical College of Indiana, Indianapolis, 1893; aged 68; died, August 14, of heart disease.

John J. Cunningham, Providence, R. I.; Baltimore Medical College, 1904; aged 44; died, August 26, at his summer home in West Barrington.

Ninian F. Harrison, Detroit; Detroit College of Medicine and Surgery, 1891; aged 59; died August 15, of cerebral hemorrhage.

George William Hubbard ✠ Springfield, Mass.; College of Physicians and Surgeons, Baltimore, 1894; aged 53; died, August 11.

James Semple Haile, Chatham, Va.; University of Maryland School of Medicine, Baltimore, 1886; aged 69; died, August 13.

John A. McBride, Carrollton, Miss.; Medical Department University of Louisiana, New Orleans, 1878; aged 67; died, August 13.

Arthur Wilkinson, Alpena, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1872; aged 81; died, August 16, of senility.

James Thomas Wilkinson, Delaware, Okla. (years of practice); aged 62; died suddenly, August 19, of cerebral hemorrhage.

Eugene L. Waggoner, Los Angeles; Chicago Homeopathic Medical College, 1889; aged 65; died, August 14.

Joseph Hopson, Louisville, Ky.; Jefferson Medical College of Philadelphia, 1870; aged 76; died, August 21.

Benjamin P. Pierce, Mackinaw, Mich. (licensed, Michigan, 1900); aged 65; died, August 14.

B. S. Tinsley, Fogil, Okla. (years of practice); aged 85; died, August 11, of senility.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE PANACEA OF MR. SPEAR

Learn, for Three Dollars, What to Do for Lice and Rejuvenation

John W. Spear of Marquette, Mich., was for many years a realtor of vision; at present he is selling the formula of a modern catholicon. Possibly Mr. Spear reached the conclusion that there was, doubtless, much easy money going to waste and that it was foolish not to get some of it. He has adapted a scheme that has been found profitable in other lines of human endeavor, to the exigencies of twentieth century quackery.

One calls to mind the story of the individual who advertised that, on receipt of $1.00, he would send a government-approved engraving of the "Father of his Country." Those who sent in the dollar received in return a two-cent postage stamp. Then there was the enterprising gentleman who advertised a device that was sure death for cockroaches. Those who bit received two small blocks of wood with instructions to put the cockroach on one of the blocks, superimpose the other and apply pressure.

Mr. Spear's scheme, if less ingenious, is even simpler. He advertises that he has made "A Wonderful Discovery," that he has cured himself of "Nervousness, Heart Trouble, Rheumatism and Catarrh," that he is convinced that the remedy with which he performed these miracles "will cure most people of their ailments." His remedy, he says, is a simple one that can be purchased anywhere; for twenty cents one can "buy enough of this remedy to last a month." But Mr. Spear does not sell the remedy. No, indeed! Nothing so ordinary. Mr. Spear has a simpler scheme. He offers to sell the "formula" to those who will remit $3.00. He who parts with his money receives a printed slip (reproduced with this article) giving the "formula" of this discovery. "Coal Oil—Nature's Wonderful Remedy."

THE APPROACH BY CIRCULAR

Early this year Mr. Spear was carrying his message of hope to the public by means of small printed circulars. This had a preliminary statement to the effect that it was different from "any circular you ever read," and the public should "read it and be convinced." This preface was attributed to three men, an ex-mayor, the proprietor of a local hotel and an attorney, who assured the public that "Spear is all right." Then followed the story of the "Great Discovery." Mr. Spear declared that he wanted "all mankind to know it," and added:

> "Some doctors would probably pay me a large sum if it could be kept a secret."

Spear's claim is that for six years he had "heart trouble"; in fact, "Dr. Janes, who attended me while Dr. Markham was away, said I had heart disease. I thought sure I was going to die, and my wife was alarmed." Having found, by accident, something that would "cure chapped hands" and also stop "winter itching," Mr. Spear reasoned: "If it would cure these things, I would try it on my heart, which I did." As a result, he now can "go fishing and hunting."

The Marquette realtor is sure that his remedy "is worth a fortune to some people," but feeling, evidently, that there may be some skepticism on the part of those who are asked to send him $3.00 for his formula, he states:

> "I am no fraud . . . I am now an old man, nearly 75, too old to lie, as I would like to go to Heaven when I die."

Mr. Spear assures the public that all his statements are true and that "you fellows who neglect to read this will never know what you have missed." He expresses the opinion that his remedy will "cure the first stage of consumption" and says that he is experimenting with it for other ailments. He feels sure that "by mixing it with water, it will cure lung trouble." He is not after your money:

> "If I was after your money, I would have you pay me $5 or $10. I am only charging about what I think will pay my expenses. I want everybody who reads this to wrap three dollars in the paper with your name and address plainly written, and I will return a printed 'Formula' telling what I used and how I used it for different ailments."

He then adds that he, himself is now so well that he is again in the real estate business and, following the habits of a life-time, suggests that "if you want a summer home write

THE DETROIT FREE PRESS

A Wonderful Discovery

For six years, up to about two years ago, I was a wreck; then I discovered the wonderful remedy which cured me and which has made me feel as well as at any time in my life. And I now want you to have this wonderful remedy so you can use it if you should become sick.

How I Cured Myself of Nervousness, Heart Trouble, Rheumatism and Catarrh.

Could not sleep nights, and, after having been attended by two doctors, who failed to help me, I thought surely that I was about to die. Then by accident I discovered my wonderful remedy, and after experimenting with it for some time all these ailments left me. I was so weak I could not go up two flights of stairs or walk half a mile. Today I can go fishing and hunting. It is a mystery to the doctors how I cured myself. I am no doctor, but I have a right to tell you what has cured me and saved my life.

John W. Spear, Marquette, Mich.

It is wonderful for insect bites and cuts and bruises on man or cattle. Will cure poison from poison ivy. As a first aid lotion for cuts, bruises and insect bites it is wonderful and will cure dandruff and will rid anything of lice.

20c will buy enough of this remedy to last a month. In formula I will give you proof that what I WRITE IS TRUE.

Cut Out This Coupon and Mail Today

John W. Spear, Marquette, Mich.

Dear Sir:

Enclosed find $3.00, for which please send me the name of Remedy which made you a new man, and how to use it.

Name.....

Street and No.....

County.....

City.....State.....

TESTIMONIALS

Photographic reproduction (greatly reduced) of a four column advertisement appearing in the Detroit *Free Press*, August 21, 1923. The original advertisement was 15 inches high.

for pamphlet of Marquette." The closing part of the circular is devoted to two printed testimonials relating, not to the "formula," but to Mr. Spear. An attorney, a justice of the peace and municipal judge, and the president of a local lumber business state that they have known Mr. Spear quite intimately for forty years; that he had been in poor health for several years until within the last year since when he "has mended remarkably." The other testimonial letter, which characterizes Mr. Spear as an "upright, honest man" who "does not have to lie" and assures the public that the circular is "no humbug or swindle," is signed by two other real estate men, an insurance man and several merchants.

INCREASING THE ADVERTISING APPROPRIATION

Presumably, Mr. Spear found the circular just dealt with a profitable means of separating the public from its money.

At any rate, he has recently broadened his advertising field. The Detroit *Free Press* for Aug. 21, 1923, contained a Spear advertisement. We reproduce it in miniature with this article. The original was four columns wide and fifteen inches high. The "copy" is largely a reprint of the circular already referred to. He tells of the "Wonderful Remedy" which cured him of "Nervousness, Heart Trouble, Rheumatism and Catarrh"; declares that it made him "the youngest looking and acting man in the United States" for his age and says that the more of the remedy he takes the younger he seems to grow. The "Discovery" is wonderful for insect bites and cuts, will cure the effects of poison ivy, dandruff and "rid anything of lice." The advertisement further contains the two testimonial letters from local celebrities detailing the virtues of Mr. Spear. It also contains special testimonials from the local mail carrier and from "Mr. Spear's chore man," respectively.

In addition to such overwhelming testimony, Mr. Spear declares, in effect, that the business he is now engaged in in selling this "formula" is a perfectly legitimate one because the local postmaster and the local post office inspector said so. Further:

"I have also sent circulars and formulas to the Postmaster-General and the United States Chief Post Office Inspector at Washington."

Coal Oil—Nature's Wonderful Remedy

(Can be procured at Grocery or Drug Stores)

For Accidents, Wounds, Cuts or Burns—I apply COAL OIL immediately, as it will soothe the pain and keep out all germs.

For Heart Trouble—I rub COAL OIL externally, and take ½ teaspoonfull internally, mixing it with water, twice a week and increase it until I take a teaspoonfull clear twice a week or as often as bowels will allow. I was afflicted with Heart Trouble and COAL OIL cured me in four months.

For Catarrh and Colds—I also used COAL OIL diluted with water in douche cup twice a week and was entirely cured of catarrh. The same treatment is very beneficial for colds in the head as it cured my colds immediately.

For Dandruff or Itching Scalp—I rub into the scalp—if scalp is tender add a little vaseline.

For Rheumatism—I rubbed COAL OIL externally and took internally as for heart trouble. I was entirely cured in a short time.

For Insect Bites and Plant Poison—Use Kerosene or Gasoline freely. Kerosene is best for insect bites while there is nothing better than Gasoline for Ivy Poisoning or other plant poisoning.

For Cattle and Poultry—COAL OIL will eradicate all lice from poultry and is invaluable for cattle, both for insect and fly bites, for sore teats or wounds.

It kills all germs in the body and lubricates the whole system, so there is no disease. After using a few times you do not notice smell or taste.

Druggists sell Nujol, Mistol and Stanolax, by-products of COAL OIL. Petroleum is used in making salves and medicines. I USE IT PURE. It is very penetrating and kills all germs.

JOHN W. SPEAR.

Photographic reproduction (greatly reduced) of the printed slip that Spear sends out to those who answer his advertisement. The original measures about 5 in. by 8 in. It is printed on cheap paper. This is all you get for $3.00.

If Mr. Spear's present business is legitimate, then the promoter of wildcat stocks is a public benefactor. What shall be said of a great newspaper like the Detroit *Free Press* which furnishes the "come-on" for Spear and participates in the profits of such an outrageous piece of charlatanry?

Tuberculosis.—Tubercle bacilli are present in every tuberculous lesion. They are found in clumps in the center of miliary tubercles, in more or less considerable number in the pus of tuberculous abscesses, in the sputum of phthisical patients, in scrofulous glands and in some serous effusions, in the skin alterations of lupus and at times in the circulating blood. But it is not always easy to demonstrate them, especially in old calcified or fibrotic lesions. They can be disclosed only by inoculating the ground up contents or walls of lesions into a susceptible animal such as the guinea-pig. The bacilli are almost always enclosed within the cell elements; but when the latter die and disintegrate, the bacilli are set free and may then be excreted from the body by various normal or accidental excretory paths. By direct microscopic examination, even with the highest magnification, only the very experienced observer can determine—and then with uncertainty—whether he has to do with the tubercle bacillus or with other microbes which have the same appearance in the fresh state.—Calmette, Albert: Tubercle Bacillus Infection and Tuberculosis in Man and Animals, Baltimore, Williams & Wilkins Company, 1923.

Correspondence

HEALTH CONDITIONS AMONG THE INDIANS

To the Editor:—In THE JOURNAL, Aug. 14, 1920, appeared a communication of mine on conditions in the Indian Medical Service, which has since been reprinted in the congressional hearings on the Pueblo land question. The conditions set forth at the time have remained practically unchanged, certainly as far as the vast Navajo Reservation is concerned, with which I am most familiar.

The present situation is deplorable and is evidence of most regrettable apathy on the part of the nation which has assumed responsibility for the medical needs of the Indian population on reservations or otherwise under government jurisdiction. The physicians are inadequately compensated for arduous services, the equipment is generally poor or antiquated, and the hospital facilities are insufficient, considering the area to be served. Ambulances or other suitable forms of transportation for patients are entirely wanting, although a large number of the Indians live remote from the agencies where hospital facilities are available.

I have just returned from an extended trip through portions of the Navajo country, including several hundred miles of travel over almost impassable roads. I have seen many badly neglected cases of serious illness and much neglect of trachoma, while neglected cases of incipient phthisis are encountered everywhere. As far as it is possible to observe, the government is rendering a minimum of service, while it shirks obvious treaty and humanitarian obligations. But the first and most important need is for more hospitals and for a better paid medical and nursing staff.

On a reservation of some 15,000,000 acres live many thousands of Indians in widely scattered "hogans," with dirt floors, and as a rule in insanitary and otherwise unwholesome conditions. These "hogans" seldom contain anything else but a few sheepskins, blankets and boxes, being just a shelter, not a home. Of housing progress, there is none. Of health supervision and sanitary control, there is hardly a trace. How many Navajos there are, how many are born, how many die, no one knows and no one seems to care. What these people die from, outside of a very limited and restricted medical practice, is purely a matter of guesswork. To what extent tuberculosis prevails is also a guess.

Under these conditions it is only natural that the medicine man of old should still flourish and carry on his superstitious practices of a by-gone age. If the Indians are increasing in numbers, this is primarily due to nonintercourse with the white population and the comparative rarity of social diseases. The Navajos are one of the finest surviving types of our native population. We have an imperative duty in this matter, which will be discharged only if the organized medical profession makes its influence felt. There is, therefore, need of a thorough congressional investigation of the medical services on the Indian reservations, which, however, should be made with the aid of persons competent to ascertain the facts of the case. Having given the matter extended consideration, I feel that the following suggestions may serve as a minimum as what is most urgently needed at the present time:

1. Congress should require a complete enumeration of every Indian, of tribal or reservation, or other recognized connection, subject to government supervision and control. The present method of the commissioner of Indian affairs in estimating the Indian population is grossly deceptive, being

inclusive of negroes and whites who have not even a trace of Indian blood but have merely a legal relationship to Indian interests.

2. Congress should require the Indian commissioner to provide a complete and correct enumeration of all births and deaths among the Indian population subject to government supervision and control. The vital statistics at present collected are farcical and misleading. Thousands of Indians die without medical attention or a coroner's inquest. No study worthy of serious consideration has ever been made of the medical and mortality problems of the Indian, with a due regard to locality, tribe and degree of possible race intermixtures.

3. Congress should require the commissioner of Indian affairs to make or cause to be made an annual report on the health of the Indian population by one thoroughly qualified to do so. Such a report should contain recommendations, as regards the medical and sanitary needs of the Indian population, in matters of detail, and the true state of affairs as to population increase or decline.

4. Congress should require a complete inventory of the medical equipment and appliances on the various reservations, including a tabular analysis of the hospital provision, the treatment given, and the results secured, with a due regard to the medical and surgical nature of the case.

5. Congress should provide for the earliest possible transfer of the entire Indian Medical Service to the United States Public Health Service, under which both the physicians and nurses employed would have a higher status, better compensation, and security of office in place of the present unsatisfactory and precarious mode of arrangement.

In its final analysis, the responsibility for the health of the Indian population rests on Congress. It is for Congress to determine what our national medical policy toward the Indian shall be. At present, thousands die for want of proper attention and thousands of others suffer dreadfully the consequences of apathy and neglect. It is certainly the duty of the American medical profession to assist in bringing about the radical reforms required.

FREDERICK L. HOFFMAN, Wellesley Hills, Mass.

THE CLINICAL STUDY OF INTRACRANIAL ANEURYSMS

To the Editor:—Recent articles by Dr. C. P. Symonds and Dr. Harvey Cushing in *Guy's Hospital Reports* for April, 1923, pp. 140-163, not only present an unusually interesting series of cases, but demonstrate the possibility and means of making a diagnosis during life of this fairly common, yet too often overlooked condition. Intracranial aneurysms, which are most often at the bifurcation of the internal carotid artery, seldom become large enough to make a diagnosis possible before rupture. With rupture of the aneurysm, the patient is likely to complain of "something snapping," of occipitofrontal pain, and especially of pain in the back of the neck. Unilateral ophthalmoplegia, ptosis, immobile pupil, and disturbances of vision point to pressure in the parachiasmal region. Following the intracranial hemorrhage is the picture of increased intracranial pressure, blood in the spinal fluid, and later, xanthochromia, and often subretinal hemorrhages. A rise in temperature, and signs of meningeal irritation, with retraction of the head, may be present.

Infective endocarditis, cerebral arteriosclerosis, and a congenital weakness of the arterial wall are the recognized causes of intracranial aneurysms. Syphilis is rarely, if ever, responsible.

A remarkable fact is that out of fifteen ruptures that seem to have occurred in ten patients, only seven cases of rupture were followed by death within a few days or weeks. In all the other cases, the patients survived for more than a year, although unrelieved in two cases. At the time of writing, three patients were alive, one of whom had recovered after each of three attacks during seven years.

It would seem, then, that there must be many unrecognized cases of rupture, or of pin-point leakages, which recover for varying lengths of time. This ability to recover thus renders the problem one of more than academic interest.

THEODORE C. GREEN, Boston.

CONTROL OF OPHTHALMIA NEONATORUM

To the Editor:—When, in 1909, a Committee on Ophthalmia Neonatorum was appointed by the American Medical Association with directions to use its effort to prevent blindness resulting from the neglect of proper care of the new-born infant's eyes, there was reason to expect that much in time might be accomplished. It was a difficult but not an impossible undertaking. The committee worked for a number of years through local and state health boards, and ophthalmologic, gynecologic and other medical societies, with a large measure of success. The percentage of admissions in the schools for the blind of children who had lost their sight from this cause was reduced during the decade and a half between the years 1908 and 1923 from 26.6 to 14.2 per cent. This was a great gain. It meant that many more were saved from a lifetime of blindness than the records indicated. But eternal vigilance is the price we must pay for protection. Just as soon as constant warnings cease, negligence again begins. Now the same careless and inefficient methods are beginning to reassert themselves.

Again, an unwarrantable number of children are being made blind from this controllable cause, and in three or four years, when the school age is reached, in the place of a continued reduction in the number of these poor sightless babies, an increase will be found in their number. That *any* child should be allowed to be made blind from this cause is a crime.

There was recently born in an accredited hospital in a large city, well supplied with skilful physicians, a strong, well-formed child. The hospital was under the care of a board of philanthropic and intelligent directors, and was visited by a regularly appointed staff. The child was illegitimate, and ophthalmia neonatorum might have been expected. It promptly developed. Inflammation went on in both eyes to corneal ulceration, staphyloma, and complete and incurable blindness. It does not appear that any prophylactic was employed when the child was born, and certainly no ophthalmologist was called in counsel until after the child's eyes were hopelessly lost. This case is by no means unique. So far have protective measures been forgotten that recent statistics from Pennsylvania show that in 1920 in only twenty cases out of thirty-five, and in 1921 in only twenty-two out of thirty-three, was any prophylactic employed, and of forty-nine cases reported aside from these left with defective vision, two were made absolutely blind.

That this should happen anywhere is, of course, unnecessary. The reasons are the same as they always have been. In many public institutions the training in the prevention and care of ophthalmia is inadequate. Recently a trained pupil nurse mistook the directions, and instead of using the silver nitrate once and repeatedly washing out the conjunctiva with boric acid solution, reversed the directions. The ensuing ulcerative keratitis destroyed the infant's eyes.

These cases are occurring, not only as formerly in the practice of midwives, but also under the regular care of even hospital physicians. The long years of wretchedness and misery entailed by one case of this kind are beyond estimate. The material expense of the maintenance of one blind person through the years of what may be a long life will amount to

thousands of dollars. The stupidity of allowing such conditions to go on seems beyond belief. Continued publicity concerning the danger of conjunctivitis neonatorum, and the necessity of health boards perpetually urging prophylaxis and skilled treatment, are essential if these unnecessary losses of eyes are to cease. Cannot the organized methods that have proved so successful be reestablished, and the last 14 per cent. of blindness from this cause, which remains as a stigma on our profession, be made to disappear? Would it not be well if, under the authority of the American Medical Association, sight-saving measures should be again instituted until it should become as much a matter of routine everywhere to give the new-born infant's eyes proper care as it is now in our most modern and best managed hospitals?

F. PARK LEWIS, M.D., Buffalo.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NUMBERS OF PHYSICIANS PRACTICING VARIOUS SPECIALTIES

To the Editor:—In collecting data for the directory of the Association, physicians practicing the various specialties were asked to designate the specialty to which their time was devoted. Those practicing a special line of work have been indicated as, S—Surgery, G—Gynecology, Obs—Obstetrics, etc. Have you classified these in your department of statistics? If so, will you please tell me how many men are practicing general surgery or are designated surgeons (excluding eye, ear, nose and throat specialists); how many men are practicing gynecology, or are designated gynecologists, and how many are practicing obstetrics, or are designated obstetricians. INQUIRER, Pennsylvania.

ANSWER.—The American Medical Directory for 1923 lists 3,177 with the mark S*: practice limited to surgery; 6,810 are designated by an S: practice surgery; 191 are given G*: practice limited to gynecology, and 1,269 who are designated with G: practice gynecology; 146 are credited OB*: practice limited to obstetrics, and 1,659 to OB: include obstetrics in their practice.

CALCIUM CHLORID IN HAY-FEVER

To the Editor:—Is it a fact that calcium chlorid has been successfully used in the treatment of hay-fever? T. G., North Dakota.

ANSWER.—Calcium chlorid seems to be of some use in the treatment of hay-fever, but it must be taken in rather large doses during the whole season to be of much benefit—about 1 gm., from four to six times a day. The use of this drug in hay-fever is chiefly based on the work of some European investigators who have shown that the permeability of the mucous membranes and of the capillaries is decreased by the internal application of calcium chlorid. The treatment, of course, is entirely symptomatic, and no permanent relief is to be expected.

SECOND ATTACK OF ENCEPHALITIS

To the Editor:—Are there any cases on record of a second attack of acute encephalitis? Would such a second attack eventually appear in milder or severer form than the first one.

JULIUS LINGENFELDER, M.D., Beemer, Neb.

ANSWER.—It is extremely difficult to distinguish between late relapses and reinfections. Two probable instances of the latter are mentioned on page 109 in the recent British report (Reports on Public Health and Medical Subjects, No. 11: Report on Encephalitis Lethargica, His Majesty's Stationery Office, London, 1922). One was the case of a man, aged 59, who was taken ill, April 30, 1920, with headache, giddiness, diplopia and lethargy, from which he slowly recovered; two years previously he had suffered ophthalmoplegia, stupor and aphasia, and was ill for about twelve months. As late relapses—even after three years—are quite frequent, we must be very cautious about accepting alleged cases of a second attack. George E. Price (THE JOURNAL, March 11, 1922, p. 716) relates a case with reappearance of symptoms, including fever, some twenty months after apparent recovery from the first attack and—probably rightly—he looks on the second attack as a relapse rather than a reinfection. It is safe to assume that reinfection practically never occurs, and that cases of an apparent second attack really are instances of latent infection with recrudescence of symptoms.

TREATMENT OF ACNE

To the Editor:—Would you be kind enough to give me some information concerning the treatment of acne vulgaris. All local and systemic treatments have been of no value. Please omit name. INQUIRER.

ANSWER.—The most valuable single method in the treatment of acne vulgaris is the use of the roentgen ray. This is especially useful in cases in which the usual methods of local treatment have not proved successful. This agent is best employed in the fractional dose method described by MacKee, in which one-fourth unit of rotentgen ray is given according to the MacKee technic at weekly intervals until from ten to fifteen such doses have been given. Care should be taken to avoid the production of an erythema. While vaccines are not generally successful in the treatment of acne, they are occasionally useful in selected cases, particularly in those of the deep seated or indurated type. There is no successful local or internal treatment other than described in the standard textbooks on dermatology.

TREATMENT OF WHOOPING COUGH BY ROENTGEN RAY

To the Editor:—Of what value is the treatment of pertussis by the roentgen ray? I have had several children exposed with apparently good results. Adults have taken two exposures, as a rule. Please omit name. F. H. M., San Diego, Calif.

ANSWER.—Pediatricians who have been using the roentgen ray in the treatment of pertussis report that it may have value. This is especially true in cases showing a high white cell count with a marked increase in the percentage of lymphocytes. Except under extraordinary conditions it is not believed advisable to expose children to the roentgen ray until the paroxysmal stage, in order that they may have opportunity to develop immunity against the disease sufficient to prevent future recurrence.

Because of the dangers of this form of treatment, it should be administered by a technician versed in roentgen-ray therapy. The technic is similar to that used in the treatment of the thymus gland. In most instances only one exposure is used.

"TREATMENT OF GROUND ITCH"

To the Editor:—Dr. E. M. Thomas of Prattville, Ala. (THE JOURNAL, August 18), wants to know how, in the local treatment of ground itch, to destroy *Ancylostoma duodenale* and prevent alimentary infestation. When practicing in Alabama I accomplished this several times by injecting 2 per cent. phenol (carbolic acid) solution with a hypodermic syringe just ahead of the lymphangitis that leads from the foot up the leg, also injecting around the dermatitis, as well as along the red line of lymphangitis.

This is best done in forty-eight hours after the itching appears, and a few drops of solution in each spot will suffice. It will be better to continue the injections over several days rather than use a toxic amount of phenol.

Subsequent feces examination will show if one has been successful.

W. C. HOWELL, M.D., Colorado Springs.

MUSCAE VOLITANTES—SPOTS BEFORE THE EYE

To the Editor:—Kindly give pathology and approved treatment for muscae volitantes, so called. C. C. GRAY, M.D., Quincy, Ind.

ANSWER.—Muscae volitantes may be of the physiologic or pathologic variety. In either case, their presence becomes manifest to the patient because of the interference with the light rays to the retina; in other words, they cause a shadow to be thrown on the retina. If definite objects lie within the central part of the visual field, the slight shadows thrown by the muscae volitantes pass unnoticed because the attention of the patient is concentrated on translating the retinal impulses that define the outlines of the objects within the field of vision. But when the gaze is directed at a blank wall or the clear heavens or a white sheet of paper, the shadows stand out in fairly sharp contrast against the uniform background.

There are no pathologic changes in the physiologic type of muscae volitantes. The shadows are probably thrown by the anterior vitreous fibers that for some unknown reason become thickened or doubled on one another or when two or more vitreous fibers happen to lie in the same anteroposterior plane,

thereby increasing the intensity of their normally invisible single shadows. In some persons, the vitreous seems to be slightly more fluid than in others, thereby allowing of freer movements of the vitreous fibers and hence more frequent shadow formation. In muscae volitantes of the pathologic type, the shadows are thrown by red or white blood cells, coagulated fibrin, or organized exudate in the vitreous. This may be recognized easily with the ophthalmoscope.

There is no local treatment for the first type of muscae beyond the necessary psychologic assurance of the patient that his floating specks are of no pathologic import. In the second type of muscae, the etiologic cause must be sought for and eliminated. The local use of 10 per cent. ethylmorphin hydrochlorid, deep applications of moist heat, and even the subconjunctival injections of 1:1,000 mercuric cyanid have been resorted to with favorable results reported in some cases. But in the majority of cases, after the cause has been removed, the muscae either become absorbed or become fixed, and cease annoying the patient within the course of some months or years.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, October 2-3. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

CALIFORNIA: San Francisco, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

FLORIDA: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.

GEORGIA: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, October 2. Dir. Mr. Chas. Laurenson, Boise.

ILLINOIS: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.

IOWA: Des Moines, September 25-27. Sec., Rodney P. Fagen, State House, Des Moines.

KANSAS: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.

MASSACHUSETTS: Boston, September 11-13. Sec., Dr. Charles E. Prior, Room 144, State House, Boston.

MICHIGAN: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.

MINNESOTA: Minneapolis, October 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

MONTANA: Helena, October 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEW HAMPSHIRE: Concord, September 13-14. Sec., Dr. Charles Duncan, Concord.

NEW JERSEY: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.

NEW YORK: New York, Albany, Syracuse, Buffalo, September 24. Sec., Dr. William D. Cutter, Albany.

PORTO RICO: San Juan, October 2. Sec., Dr. Jorge del Toro, 1 Olimpe St., San Juan.

Massachusetts May Examination

Dr. Charles E. Prior, secretary, Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, May 8-10, 1923. The examination covered 16 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 35 candidates who took the physicians' and surgeons' examination, 23 passed, including 2 osteopaths, and 12 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Phys. and Surgs., Boston		(1916)	75
Harvard University		(1922, 2)	82.7, 89.6
Middlesex College of Med. and Surg		(1922, 2)	75.5, 77.6
Tufts College Medical School		(1910)	83.2, (1921) 80.7
St. Louis Coll. of Phys. and Surgs		(1922, 2)	75, 75.8
Columbia University		(1918)	88.7, (1921) 87.1
University of Pennsylvania		(1898)	75, (1922) 89.8
University of Vermont		(1918)	81.3
Licentiate of the Apothecaries Hall of Dublin, Ire		(1913)	83
University of Naples, Italy		(1913)*	75
University of Rome, Italy		(1914)*	76.2
University of San Marcos, Lima, Peru		(1912)*	75
University of Edinburgh, Scotland		(1922)	82.1
Medico-Chirurgical Institute, Stockholm, Sweden		(1916)*	75
Central Turkey College, Ottomon University, Turkey		(1919)*	75
Osteopaths			75.6, 76.7

College	FAILED	Year Grad.	Per Cent.
Middlesex College of Med. & Surg	(1920) 71.9,	(1922, 2)	68.5, 68.7
University Med. Coll. of Kansas City		(1896)	71.9
St. Louis Coll. of Phys. and Surgs. (1920) 68.7, (1921, 2) 59.7, 71.5, (1922, 4) 51.3, 67.9, 69, 69.8			
Meharry Medical College		(1921)	56.8

* Graduation not verified.

Book Notices

HISTORY OF THE GREAT WAR BASED ON OFFICIAL DOCUMENTS. Medical Services: General History, Volume 1. Diseases of the War, Volumes I and II. Hygiene of the War, Volumes I and II. Surgery of the War, Volumes I and II. Cloth. Price, 21 shillings, net, per volume. London: His Majesty's Stationery Office, 1923.

At the present time the British government has issued seven of the fourteen volumes of its medical history of the Great War; the American government has issued Volume I and Part 2 of Volume XV, the former just received. The statement is not made as an invidious comparison; merely as a fact. In the preface to Volume I of the British history, it is pointed out that Great Britain has not previously published a medical history of any war. The stimulus for the present series was aroused by a letter from Professor Adami, then of McGill University, to Sir William Osler, Sept. 25, 1914. Nov. 11, 1914, Surgeon General Sir Alfred Keogh appointed Capt. F. S. Brereton to undertake the duties of preparing material for such a history. He was established in an office to which the war diaries of all medical units were sent, and he was gradually provided with additional clerks until he was finally assisted by eight persons devoting full time to the compilation of the material. In addition, a statistical department was organized under Sir Walter M. Fletcher, and to this committee were turned over all statistical records and medical case sheets. Furthermore, Lieutenant Colonel Brereton enlisted the aid of others in the establishment of a museum of the war, and he was authorized to visit the different battle fronts and collect plans, sketches and photographs for a permanent collection. In 1918, a meeting was held to draw up a definite plan for preparing the present volumes. Major Gen. Sir William MacPherson was appointed editor in chief, and under his direction the writing of the history was organized, special committees being appointed in each of the subjects covered. The complete series will include four volumes on general history, two volumes on the diseases of the war, two on surgery, two on hygiene, one on pathology and medical research, and one on medical statistics and epidemiology.

GENERAL HISTORY

The first volume on general history, now at hand, deals with medical services in Great Britain and overseas, and contains an account of the medical services in operation against the German colonies in West and South Africa and in Tsingtau. The remaining volumes of the general history will deal with the medical services in France and Italy, the Mediterranean, Mesopotamia, Aden, East Africa and Russia. The book opens with a chapter on the preparation of the service for war organization. It details, step by step, the gradual organization by units, the development of new units, the provision of personnel and training. There follow sections on mobilization and hospital accommodation, and plans for the disposal of the sick and wounded. Those who recall the American difficulties in determining proper methods for the examination of recruits will read with sympathy the difficulties which Great Britain had in the same problem. It was in Great Britain that a plan was first adopted for classifying men in five classes according to their ability to serve in various capacities. It is brought out that the importance of this work was chiefly in the fact that for the first time in the history of Great Britain an inquiry was conducted into the physical health of the entire male population of military age, and that new and important facts regarding the physical standards of the nation's manhood were brought to light. A most appreciative mention is made in the section on recruiting of medical service of the organization of American base hospital units and their arrival in Britain, where they were placed under the control of British authorities.

Special sections are devoted to medical and surgical equipment, sanitary organization, demobilization and voluntary aid. The latter part of the book is devoted to the campaigns in China and in South Africa. There is an extensive appendix to this volume, listing the units organized, hospital ships and transports, tables of equipment for various organizations, and summaries of admissions to hospitals for various diseases.

DISEASES OF THE WAR

The two volumes on the diseases of the war follow a definite plan. After a discussion of the general aspects of war diseases, the conditions are taken up one by one, beginning with the intestinal diseases and following with throat and lung disturbances, malaria, etc. In the case of each disease there is a classification, statistics are given, special symptoms are described, and etiology is discussed. The diagnoses are considered, and there is a statement of the treatment definitely established. Finally, a bibliography of the articles consulted gives the authority for the discussion. To every physician these two books should be of great value as outlining proved methods for the care of the conditions discussed.

The second volume is devoted more particularly to conditions peculiar to war. It begins with neurasthenia and the war neuroses, follows with skin and venereal diseases, and concludes with disturbances due to aviation and gases. It is interesting to learn that in February, 1921, approximately 65,000 men were drawing pensions in Great Britain for disabilities due to neurasthenia and allied conditions, and in February, 1922, the number had decreased to 50,000. It is clear that the effects of the war may be felt for a long time after actual fighting has ceased, and there seems to be evidence that nervous disturbances may be expected to develop long after a soldier may have returned to civilian life.

The matter of prophylaxis against war neuroses in future wars received the attention of a special commission, and it is suggested that such preparation take two forms: training of man to insure proper morale, and close observation to permit withdrawal of officers and men from service before complete breakdown.

The section on skin diseases lists all of the complaints recorded and the method of prevention and treatment. As usual, venereal diseases were a prominent military problem, and the story presents little hope for the discovery of any panacea that will largely diminish exposure to venereal disease or control beyond a limited extent in future wars. Various officers established various methods, and the results were in general the same. The best results seemed to have been secured by the provision of adequate personal disinfection apparatus and the active urging of the use of such methods. In addition, special disinfecting stations under the control of skilled attendants were established, and experience seems to have shown that such control has real value as a protection against venereal disease. The value of lectures was not demonstrable, but they seem to have been useful. The value of self disinfection does not seem to have been absolutely determined by any proved figures, and there does not appear to have been any way of determining definitely exactly how much value could be applied to any one procedure.

One portion of this section of the book, dealing with use by the British army of other remedies than the routine arsphenamin and mercury for syphilis, tells of many unusual compounds that were tested under military conditions. Apparently there was no marked success over the usual routine.

The sections on medical aviation and on gas warfare, while of great war interest, have no immediate application to civilian life.

SURGERY OF THE WAR

The two volumes on surgery of the war follow much the same plan as those devoted to diseases of the war. Two chapters are devoted to the various projectiles used and the results of projectile action. In some sixty pages there is here given a concentrated discussion of the mechanics and pathology of projectile wounds. Two chapters then follow on wound shock, recapitulating the various theories brought out during the war, and concluding with a statement of seven preventive measures based on the theoretical considerations. Blood transfusion receives a chapter, without, however, any reference to the extensive American experience in this subject, which is, no doubt, greater than that in other countries. There follow chapters on gas gangrene, tetanus, trench foot and anesthesia, and then a series of discussions on surgical work as carried out in field ambulances, casualty clearing stations and similar war organizations. The remaining chapters are concerned with wounds of various divisions of the body, the largest section concerning wounds of the abdominal organs.

In the second volume this type of discussion is continued, several chapters being devoted to fractures, orthopedic treatment and amputation. In their discussions, the authors have drawn on the complete experiences of all armies in an endeavor to make the account a summary of the knowledge derived from the great holocaust.

HYGIENE OF THE WAR

The lessons in preventive medicine were, no doubt, most important of all. Among the British troops during the South African war, with an average strength of 208,000 and an aggregate strength of 530,000, there were 58,000 cases of typhoid fever and 8,000 deaths from this disease, whereas in the World War, with an average strength of one and a quarter millions and an aggregate of three or four times that number, there were only 7,500 cases of typhoid and paratyphoid fever and only 266 deaths. The two main directions in which sanitation helped in achieving these results were the purification of water supplies and the sanitary disposal of waste products. These two subjects are more fully discussed in the volumes on hygiene of the war than any others. The discussions are beautifully illustrated and carefully detailed, representing, so far as we know, the best considerations of these two problems thus far in print. However, many other fields of sanitary action are likewise considered. The disinfestation of persons and clothing is covered in several chapters. The feeding of soldiers receives extended discussion, and special chapters are devoted to housing, clothing and general hygiene. One section deals with the special problems associated with campaigns in Russia, and another with prisoners of war and the conduct of a base hygiene laboratory. Final chapters take up the prevention of various war diseases, such as malaria, trench foot and the control of flies, lice and scabies.

The various appendixes give the exact text of special and general orders issued covering the subjects concerned.

HERZ- UND GEFÄSSMITTEL, DIURETICA UND SPECIFICA. Ihre Anwendung bei Kreislaufssörungen nach klinischen und pharmakologischen Gesichtspunkten. Von Dr. Rudolf Fleckseder, Privatdozent an der Universität Wien. Paper. Pp. 111. Vienna: Rikola Verlag, 1923.

The remedies used by the cardiologist are discussed under such headings as "heart remedies," "vasoconstrictors," "vasodilators," "diuretics," and "specific remedies," including "internal antiseptics," "antirheumatics" and "antisyphilitics." The little book is so replete with practical points on the use of remedies affecting the circulatory system that it may be recommended, most especially, to the practicing physician who desires to place himself in line with the modern views on cardiovascular therapy.

THE CHEMISTRY OF TUBERCULOSIS. A Compilation and Critical Review of Existing Knowledge of the Chemistry of the Tubercle Bacillus and Its Products; The Chemical Changes and Processes in the Host; The Chemical Aspects of the Treatment of Tuberculosis. By H. Gideon Wells, M.D., Ph.D., Professor of Pathology in the University of Chicago, Lydia M. DeWitt, M.D., A.M., Associate Professor of Pathology in the University of Chicago, and Esmond R. Long, Ph.D., Assistant Professor of Pathology in the University of Chicago. Cloth. Price, $5. Pp. 447. Baltimore: Williams & Wilkins Company, 1923.

Since the organization of the O. S. A. Sprague Memorial Institute in 1911, a special group has been devoting itself to the study of the chemical aspects of tuberculosis and related problems. As pointed out by the authors, the last complete review of the literature appears to be that published by Ott, in 1903; but by far the most extensive studies of the chemical factors in this disease have been made since that period. In these original researches, all of the authors of the present volume have had a prominent part. Section I, by Esmond R. Long, is devoted to the chemistry of acid-fast bacteria. The presentation is brief but adequate, and each of the sections is summarized in a well written recapitulation. The second part of the book, by Prof. H. G. Wells, concerns the chemical changes in the tuberculous host. The author's well known book, "Chemical Pathology," is evidence of the character of material in this section. The final section, the chemotherapy of tuberculosis, by Lydia M. DeWitt, is an excellent summary and theoretical consideration of the various sub-

stances that have been particularly urged in the treatment of tuberculosis. As is well known, this includes virtually the entire pharmacopeia. The multiplicity of drugs tried in tuberculosis signifies their lack of success. Dr. DeWitt comes to this logical conclusion:

> The general and symptomatic treatment of tuberculosis, therefore, are the same as the treatment of similar conditions which are not related to a specific disease. Until a specific chemical or immunological therapy has been found for the disease, the fresh air, the hygienic and dietetic measures which have been so long and favorably known must still be relied on as the main hope in the treatment of tuberculosis.

In this volume the reader will find a well written summary of our actual knowledge of the natural history of tuberculosis.

COMPENDIO DE QUÍMICA FISIOLÓGICA. Por Mauricio Arthus, Profesor de Fisiologia de la Universidad de Lausana. Traducido de la Novena edición Francesa. Paper. Pp. 464, with illustrations. Barcelona: P. Salvat, 1922.

Since Arthus' book was first published, its popularity has been proved by nine French and three German editions. In addition, it has been translated into Russian and now into Spanish. Arthus intended his work as a bridge between chemistry and physiology. Being written for medical students, it inclues only the necessary chemical knowledge for the study of physiology. The chief feature of the book is the clearness of its discussions and explanations.

DIAGNOSTIC METHODS, CHEMICAL, BACTERIOLOGICAL AND MICROSCOPICAL. A Text-Book for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Medical Jurisprudence in Rush Medical College, University of Chicago. Price, $8. Pp. 909, with 209 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

In the two years that have elapsed since the appearance of the last edition of this book, research in biochemistry and the laboratory methods of diagnosis has been extensive. In his preface, the author calls special attention to the new methods that have been added as the result of such work. The position of this book in the field that it covers is secure, and the rapid appearance of new editions, keeping pace with progress in science, is evidence of the effort and care taken to keep it in that position.

DREADS AND BESETTING FEARS, INCLUDING STATES OF ANXIETY, THEIR CAUSES AND CURE. By Tom A. Williams, M.B., C.M., Neurologist to Freedman's Hospital. Cloth. Price, $1.75 net. Pp. 217. Boston: Little, Brown and Company, 1923.

This is a simply written book based on the author's experience in the care of patients subject to various forms of dread and fear. It is written for the lay rather than for the medical reader, and follows rather closely the common sense point of view, although at the same time giving support to the Freudian view of the importance of infantile and hereditary impressions. Sections on bashfulness, college breakdowns and all the management and dispelling of fear seem especially worth while.

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN HEALTH AND DISEASE. By Alida Frances Pattee. Fourteenth edition. Cloth. Price, $2.60. Pp. 646. Mount Vernon, N. Y.: A. F. Pattee, 1923.

TEACHER'S DIETETIC GUIDE: CONTAINING STATE BOARD REQUIREMENTS IN DIETETICS AND STATE BOARD EXAMINATION QUESTIONS. Paper. Given gratis with each copy of Pattee's Practical Dietetics. Not sold separately. Pp. 142. Mount Vernon, N. Y.: A. F. Pattee, 1923.

This well known work is now in its fourteenth edition. It has become a standard work, as evidenced by the fact that editions appear annually and that four reprintings were necessary during 1922. It represents a carefully worked out compilation in which the editor has had the assistance of well known authorities throughout the country. For the physician who wishes to be abreast of the times in the dietetic control of disease, it is a reasonably priced, invaluable reference work.

EINFÜHRUNG IN DIE KLINIK DER INNEREN SEKRETION. Von Prof. Dr. G. Peritz, Nervenarzt in Berlin. Paper. Price, 27 marks. Pp. 257. Berlin: S. Karger, 1923.

In this handbook, the glands presumed to have an internal secretion are described anatomically, and the results of extirpation and extract administration are given in detail. Concluding chapters deal with the diseases associated with the glands, their chemistry, and the influence of the internal secretions on the nervous system. The work is not wholly up to date and, as in other recent books on the glands, its author seems inclined to accept much that is opinion for proved fact.

Medicolegal

Wrongful Discontinuance of Operation and Neglect of Patient—Liability of Insurer

(Morrell v. Lalonde et al. (R. I.), 120 Atl. R. 435)

The Supreme Court of Rhode Island says that for a number of years the defendant had been the plaintiff's family physician and had at various times treated her for different ailments. For more than three years she suffered from a rupture which finally resulted in strangulated hernia. The defendant had advised that an operation was necessary and any delay dangerous, but she took no action in the matter until her condition became so critical that she was convinced that an operation offered the only chance of saving her life. In response to her call, the defendant visited her at her home and advised her that an operation was necessary at once. She said that he agreed to perform the operation and to call for her that night to take her to his hospital; that he did not call for her; but that the next day she went unattended to his hospital, where later in the day he performed an operation on her.

The defendant knew the facts of the case: that the necessary operation was one which required skill, judgment and some courage. He was under no compulsion to act because of an emergency not anticipated by him. In view of his subsequent conduct, it is not easy to understand why he undertook to perform the operation. He made an unskilful opening into the abdomen, and, without attempting to do anything to relieve the obstructed bowel, after removing an accumulation of pus, sewed up the wound, told his patient she was going to die, and that he could do nothing more to help her.

The plaintiff's husband went to the hospital that evening, and later in the evening the plaintiff was sent to her home, as she said, by advice of the defendant. The defendant denied that, and stated that the plaintiff insisted on being carried to her home despite his advice to the contrary. Much stress was laid on the means of transportation secured by the defendant, which was an undertaker's automobile used generally for the transportation of coffins and the removal of bodies of persons deceased. The vehicle was inclosed and contained a removable stretcher. There was some evidence that this vehicle had before this time occasionally been used as an ambulance. The plaintiff knew the owner of the vehicle, and the defendant said that she and her husband were willing to use it in order to save expense.

In any view of the facts, it was the duty of the surgeon to assert his influence and authority to induce and to require his patient to remain in the hospital and thereby avoid the risk to her life incident to any removal. He failed to discharge this duty to his patient in this respect. He also neglected to call on his patient after the operation, his excuse being that he was too busy in his hospital. However, he did telephone to a district nursing association, and as a result a visiting nurse for a short time for several days went to the plaintiff's home and attended to the dressing of the wound. But, under the circumstances, this did not relieve the defendant of his duty to look out personally for his patient after the operation.

On the third day after the operation, she was taken to another hospital, where a second operation was successfully performed, and after six weeks' stay in the hospital, she returned to her home.

The evidence was ample to sustain a finding of liability. The defendant deliberately, with full knowledge of the seriousness and delicacy of the necessary operation, undertook to perform the operation. For some reason, either from lack of judgment or perhaps from a realization of his lack of the necessary skill or from a lack of courage, he failed properly to perform his duty as a surgeon. In this case it is clear that, having begun the operation, the surgeon should have finished it. Although the patient had only a small chance of escaping death, the defendant, by failing to relieve the acute condition of strangulation, and by making a useless

and unnecessary incision into the abdomen, thereby diminished the chance of his patient's surviving. For his failure and his subsequent neglect he was responsible to the plaintiff for such damages as she proved she had suffered as a consequence.

The jury returned a verdict in her favor for $13,416, which the court thinks should be reduced to $8,500. Her husband was given a verdict for $2,333 in a case tried at the same time, but the court thinks the allowance to him should be reduced to $1,500. An insurance company, which had agreed to indemnify the defendant surgeon against loss, and which was joined as a defendant with him, by Mrs. Morrell, was liable—to the amount insured—to pay any lawful damages, including punitive as well as compensatory damages.

Right to Examine Injured Employee Important

(Frank Martin-Laskin Co. et al. v. Industrial Commission et al. (Wis.), 193 N. W. R. 70)

The Supreme Court of Wisconsin, in reversing a judgment that affirmed an award of the industrial commission in favor of an employee who had received a blow on his head that had resulted in a venous hemorrhage of the brain, says that no written notice of the injury was served on the employer. On a former appeal, this court held that actual knowledge of the injury by a foreman of the employer, but not communicated to the employer, was not equivalent to the statutory notice, and yet thereafter the commission reached the conclusion that the employer had not been misled, by the application of two erroneous views of law, or on the ground that the employer was estopped to claim that it was misled because its foreman had notice, and because the violated right to examine and offer medical services could not constitute a defense. It seems rather strange to the court that the commission should have reached the conclusion that an employer could not be misled by a lack of opportunity to examine and observe the employee, when the Wisconsin statute provides that a refusal by the employee to submit to examination or in any way obstruct it shall suspend his right to begin or maintain any proceedings for the collection of compensation. Here, by the plainest inference, is a direct legislative declaration that the right to examine is of such value that a refusal shall suspend the right to compensation. It is also obvious that the right to examine has a direct bearing on the nature, extent and curability of the injury—matters usually in dispute in such cases. But it is enough for the court to say that the legislature has considered such right of examination of value, and it does not come within the power of the commission to declare otherwise. It was inferentially held, in *Vasey* v. *Industrial Comm.*, 167 Wis. 479, 167 N. W. 823, that a failure to give notice might mislead the employer because of lack of opportunity to offer medical aid.

Hospital Not Liable for Surgeon's Want of Skill

(Black v. Fischer et al. (Ga.), 117 S. E. R. 103)

The Court of Appeals of Georgia, Division No. 1, says that the defendants were a surgeon and a sanatorium company. The plaintiff alleged that this surgeon and another physician and surgeon had had themselves incorporated to form the company to maintain a sanatorium or hospital; that the plaintiff having sustained injuries in an automobile accident, had been taken to the sanatorium, where the defendant surgeon rendered him unskilful, improper and negligent services whereby he was permanently injured. The sanatorium company demurred to the petition on the ground that it set forth no cause of action, or that, if it did show any liability, it was on the surgeon, and not on the company; that the alleged negligence and injuries complained of, being within the duties of a physician, could not, under the law of Georgia, be the basis of a claim against a sanatorium; that the petition showed that the acts were beyond the duties or obligations of the sanatorium company.

In affirming a judgment for the sanatorium company, sustaining the demurrer, it is held that the petition did not set forth a cause of action against the company. The fact that the surgeon was one of the principal stockholders in the defendant corporation would not render the corporation liable for the unskilful and improper treatment of his patient. Nor did the fact that the defendant company was largely under the control and management of the surgeon render the corporation liable for unskilful treatment rendered by the surgeon to one of his patients. In the petition in this case, no act of the corporation was alleged to be the cause of the injuries detailed. There was no allegation that the corporation undertook to direct the surgeon in the method of treatment and services that he rendered to the plaintiff. The allegation that the surgeon was the agent and surgeon of the sanatorium company did not render the company liable, without the further and necessary allegation and the facts to sustain it, showing that the act of the agent was by the command or direction of or within the scope of the agent's employment.

Furthermore, even if the surgeon was in the employ of the sanatorium company, there was no allegation that he was not a skilled surgeon. The precedents of the several courts of the United States seem to be harmonious in their rulings that, when a hospital contracts to furnish medical or surgical attention to a person, and acts in good faith and with reasonable care in the selection of a physician or surgeon, and selects an authorized physician in good standing in his profession, it has fulfilled its obligation, and cannot be held liable for any want of skill on the part of the surgeon employed. The master is held liable for the tortious acts of the agent on the theory that the agent is controlled and acts under direction of the master and within the scope of his duties. There was no allegation here that the sanatorium company directed the surgeon how or in what way to treat the patient.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Philadelphia, Sept. 19-21. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Hygiene Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American Electrotherapeutic Association, Atlantic City, Sept. 18-21. Dr. Richard Kovacs, 223 E. 68th Street, New York, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

American Roentgen Ray Society, Chicago, Sept. 18-23. Dr. W. W. Watkins, Goodrich Building, Phoenix, Ariz., Secretary.

Association of Military Surgeons of the United States, Carlisle Barracks, Pa., Oct. 4-6. Col. James Robb Church, Army Medical Museum, Washington, D. C., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Indiana State Medical Association, Terre Haute, Sept. 26-28. Dr. Charles N. Combs, Terre Haute, Secretary.

Interstate Society of Radiology and Physiotherapy, Omaha, Sept. 18-19. Dr. Roland G. Breuer, Security Mutual Life Building, Lincoln, Neb., Secretary.

Kentucky State Medical Association, Crab Orchard, Sept. 17-20. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 4-8. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 11-13. Dr. F. C. Warnshuis, 410 Powers Building, Grand Rapids, Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

Missouri Valley, Medical Society of the, Omaha, Sept. 20-21. Dr. Charles W. Fassett, 115 East 31st Street, Kansas City, Secretary.

Nevada State Medical Association, Reno, Sept. 28-30. Dr. Horace J. Brown, Thoma-Bigelow Building, Reno, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 1-4. Dr. W. F. Donaldson, Jenkins Arcade, Pittsburgh, Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Oct. 3-5. Mr. J. G. Crownhart, 558 Jefferson St., Milwaukee, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Otology, Rhinology and Laryngology, St. Louis

32: 321-640 (June) 1923

Depressed Nasal Deformities. Comparison of Prosthetic Values of Paraffin, Bone, Cartilage and Celluloid. Report of Cases Corrected with Celluloid Implants by Author's Method. J. D. Lewis, Minneapolis.—p. 321.

*Relation Between Thyrotoxicosis and Tonsillar Infection. L. E. Brown, Akron, Ohio.—p. 367.

Submucous Resection Complications and After Results. N. S. Weinberger, Sayre, Pa.—p. 387.

Treatment of Acute Sinus Infections. L. M. Hurd, New York.—p. 394.

Etiology and Treatment of Maxillary Sinusitis. H. V. Dutrow, Dayton, Ohio.—p. 398.

*Upper Respiratory Tract in Granite Dust Inhalation. D. C. Jarvis, Barre, Vt.—p. 405.

Pulmonary Abscess Following Nose and Throat Surgery. J. Prenn, Boston.—p. 413.

*Infection of Accessory Sinuses in Children: Report of Cases. E. A. Looper, Baltimore.—p. 417.

Nystagmus. G. W. Mackenzie, Philadelphia.—p. 427.

Diagnosis and Treatment of Pulmonary Conditions Through Bronchoscope. B. M. Kully, Omaha.—p. 437.

Structure and Function of Crista Ampularis. G. E. Shambaugh, Chicago.—p. 442.

New Magnifying Glass for Otoscopy. A. Zebrowski, New York.—p. 453.

Otitis Media Complicating Operations on Gasserian Ganglion. H. R. Lyons, Rochester, Minn.—p. 457.

Nasal Reflex. R. F. Ridpath, Philadelphia.—p. 464.

Tumors of Jaw from Standpoint of Rhinologist. J. D. Whitham, New York.—p. 474.

Phlebothrombosis of Intracranial Sinuses. C. C. Charlton, Atlantic City, N. J.—p. 485.

Dental Relations of Eye, Ear, Nose and Throat. W. H. Haskin, New York.—p. 497.

Correction of External Deformities of Nose. S. Israel, Houston, Texas.—p. 504.

Case of Congenital Hemimacroglossia with Disturbance of Locomotor Apparatus of Side Opposite Lingual Lesion. J. N. Roy, Montreal.—p. 519.

Sinusitis from Swimming. R. A. Fenton, Portland, Ore.—p. 526.

Effect of Pressure Changes in External Auditory Canal on Acuity of Hearing. A. G. Pohlman, St. Louis, and F. W. Kranz, Geneva, Ill.—p. 545.

Idiopathic Perforation of Nasal Septum. Autoplasty with Pedunculated Flap of Mucous Membrane. Cure. J. N. Roy, Montreal.—p. 554.

Otitis Media, Mastoiditis and Disease of Nasal Accessory Sinuses as Causative Factor in Malnutrition in Children. T. H. Odeneal, Beverly, Mass.—p. 561.

Relations Between Eye and Ear (Including Vestibular Organ). J. V. D. Hoeve, Leiden, Holland.—p. 571.

*Metastatic Laryngeal Arthritis. S. O. Fields, Norfolk, Va.—p. 588.

Relation Between Thyrotoxicosis and Infected Tonsils.—The possibility of a relation between goiter and tonsil infection is emphasized by Brown who inclines to the belief that the tonsil is no more likely to be the focus of infection than any other nidus, e. g., sinuses, teeth or gallbladder. It is urged that the throat specialist pay particular attention to the state of the thyroid in all cases of infected tonsils, and that all who are called on to treat disordered thyroids bear in mind the possibility of an exciting factor in the presence of diseased tonsils.

Effect of Granite Dust Inhalation on Lungs.—The effects of granite dust inhalation on the respiratory tract were made the subject of study by Jarvis. A study of the industry revealed men who had inhaled granite dust with impunity over periods ranging from thirty to fifty-nine years, and other men who suffered severely even when exposed for less than fifteen years. It was found after twelve years of observation that the upper respiratory tract held the key to the situation, and that an individual was a good risk in proportion to the absence of lymphoid tissue in this region. As a result of granite dust inhalation there occurs an adaptation to occupation of the upper respiratory tract. Absence from occupation causes a loss of this adaptation and a reentry into the industry produces irritation of the respiratory tract while the man is endeavoring to regain his lost adaptation. This last effort brings about a suitable preparation of the soil. Mouth breathing is not as injurious as nasal respiration in granite dust inhalation. Jarvis suggests that an inquiry as to the occupational history may assist in deciding the method of anesthesia when contemplating work on the respiratory tract.

Infection of Accessory Sinuses in Children.—Looper insists that all children who have chronic colds with predominant nasal symptoms, such as profuse nasal discharge, stuffiness of the head, mouth breathing and asthmatic attacks, should have a careful investigation of the sinuses. In cases in which tonsils and adenoids have been removed as focal areas of infection, and the symptoms have not cleared up after operation, infection of the accessory sinuses should be suspected. Nasal colds in children should be treated as an important disease.

Metastatic Laryngeal Arthritis.—Fields reports four cases which he asserts support his contention that there exists a laryngeal joint affection due to metastatic infection.

Annals of Surgery, Philadelphia

78: 1-128 (July) 1923

*Fatal Anaphylaxis Following Blood Transfusion. G. L. Carrington and W. E. Lee, Philadelphia.—p. 1.

*Pleural Epilepsy. H. R. Owen and A. Gonzalez, Philadelphia.—p. 6.

*Case of Multiple Myeloma of Plasma Cell Type. A. C. Wood and B. Lucke, Philadelphia.—p. 14.

Traumatic Lesions of Head. T. A. Shallow, Philadelphia.—p. 26.

Combined Abdominothoracic Approach in Operations for Diaphragmatic Hernia. H. B. Stone, Baltimore, Md.—p. 32.

*Perforation in Utero of Gastric Ulcer. W. E. Lee and J. R. Wells, Philadelphia.—p. 36.

Hemangioma of Intestine (Jejunum). Report of Case. F. Helvestine, Jr.—p. 42.

*Modified Inguinal Hernioplasty Technic, with Complete Utilization of Aponeurosis of External Oblique. DeW. Stetten, New York.—p. 48.

*Intravervical Enucleation. F. H. Larey, Boston.—p. 61.

Surgery of Ectopic Kidney: Report of Six Cases. J. R. Caulk, St. Louis.—p. 65.

Advantages and Disadvantage of Metal Plates in Treatment of Fractures and Long Bones. A. Stillman, New York.—p. 75.

*Wound of Femoral Artery and Vein. C. P. Grover and D. Fisher, Dayton, Ohio.—p. 84.

Fatal Anaphylaxis Following Blood Transfusion.—In the case reported by Carrington and Lee a man with a primary aplastic anemia developed symptoms of acute anaphylactic shock following a first transfusion of 500 c.c. of blood in 55 c.c. of a 2 per cent. sodium citrate solution. The onset was with spasm of the smooth muscle in bronchioles, bladder and intestines, evidenced by respiratory difficulty, typical asthmatic râles, urinary and fecal incontinence. The spasm of smooth muscle was followed by a relaxation with which was associated pulmonary edema. The temperature rose to 102 F. and then returned to normal. Pulse and respirations rose and remained elevated, being around 130 and 36, respectively. The blood of the donor was carefully typed and cross-agglutinated with that of the recipient. After the reaction has progressed for several hours, the venous blood showed hemolysis. There was nothing to indicate an infarction in any locality. There was no history of asthma, hay-fever or other type of protein sensitization in either the donor or the recipient.

Pleural Epilepsy.—Owen and Gonzalez observed a case of pleural epilepsy during the injection of 30 per cent. of bismuth subnitrate in petrolatum into a chronic empyema cavity. While the bismuth paste was being injected the patient suddenly collapsed. The extremities became rigid and were held semiflexed. The pupils were greatly dilated, but reactive. The head and eyes were drawn to the right side; the mouth was foamy. There was no loss of sphincter control. The temperature was normal. The respirations were rapid and labored. The pulse was rapid. The reflexes were increased, but no Babinski sign could be demonstrated. The patient was semistuporous. He could not answer questions well. Occasionally he said a few meaningless words. In about one hour the patient had a generalized epileptiform seizure, lasting about two minutes. Morphin and atropin were given without noticeable effect. This convulsion was followed by another period of stupor of about nine hours duration when a second convulsion occurred. In the following two hours the patient had four more convulsions. Three doses of morphin and atropin controlled these convulsions. The patient recovered.

Multiple Myeloma of Plasma Cell Type.—Wood and Lucke relate the case of a man, aged 51, in apparent good health,

who fell suddenly to the floor while lifting a heavy weight. Since that time he suffered from pain in the back exaggerated by the slightest motion and exertion. A few months later similar pains occurred in the chest. After a long railroad journey his condition became much worse and he finally was unable to sit or walk because of extreme pain in the back or chest. A roentgen-ray examination showed a widespread rarefaction of the lumbar vertebrae, the ribs, the pelvic girdle and both femurs. Tender lumps could be felt over several of the ribs. The urine contained traces of albumin but no Bence-Jones protein. There was a profound anemia but no definite change in the white cells. The patient died of pneumonia. The postmortem examination disclosed numerous soft, gray-red tumors in the ribs, the vertebral column and other portions of the skeleton, which had partly eroded the bones and rendered them very fragile. The vertebral column in particular was much involved, the bodies of the vertebrae being almost completely replaced by tumor masses. Histologically, the neoplasms were richly cellular, contained very little supporting tissue and were composed chiefly of elements that somewhat resembled plasma cells; these did not give an oxydase reaction. Similar cells were found in the blood spaces of the spleen and the capillaries of the liver.

Perforation in Utero of Gastric Ulcer.—Lee and Wells report the case of an infant, aged 10 days, that was admitted to the hospital with symptoms of pyloric obstruction dating from birth. This diagnosis was confirmed by roentgen-ray examination. The abdomen was opened through a right upper rectus incision 6 cm. long. The pylorus was found lying deep in the hepatic fossa and was exposed with difficulty. Adherent to the pylorus and to the greater curvature of the stomach was a section of small intestine, which on separation of the adhesions, was found to be the distal portion of a very long duodenum. When these two long limbs of the U-shaped duodenum were finally separated, the flexure or knee, corresponding to the second portion of the duodenum, was found to be adherent to the under surface of the liver and gallbladder. These adhesions were strong, well organized and separated with difficulty owing to their density. They were practically avascular. Following the release of this duodenal obstruction, the distal portion was seen to fill and distend with contents expressed from the stomach. The stomach was then more carefully examined and a circular constriction was found about 2 cm. from the pylorus which presented the appearance of an hour-glass contracture. The child died twelve hours later. At the necropsy a small, perfectly round hole in the posterior stomach wall, near the greater curvature, was revealed.

Herniotomy Technic.—This operation was described in THE JOURNAL, July 31, 1920, p. 344. Stetten now gives a brief summary of some of his observations and experiences since the publication of his former paper, and considers and answers some of the objections that have been raised against the suggested technic.

Intracervical Enucleation.—The operation devised by Lahey for benign lesions of the cervix consists in the routine supracervical hysterectomy as done, for example, for fibroid uterus up to the point of section of the cervix. At this point, the cervix is not cut across or even removed by wedge-shaped excision, but is cored out by vertical circular incisions placed just within the outermost boundary of the cervix. The cervix is pulled up with each circular incision, until as the last incision reaches the vagina, the thin remaining shell of cervical tissue is inverted from below upward, to drop back as the last circular incision separates the cervical plug from its shell of remaining cervical tissue. This leaves an opening through which a small strip may be tucked into the vagina to prevent the possible return of infected vaginal contents. The stumps of the round ligaments, and, if need be, the broad ligaments, fit easily into the large aperture and may be sutured securely there. A large mattress stitch through the entire cervical shell controls the oozing that occurs from the walls of the remaining cervical shell. Lahey has made use of this method of getting rid of the cervix in hysterectomy for benign lesions to overcome the postoperative leukorrhea and endocervicitis without producing in patients within the active sex age the vaginal shortening which results from the employment of complete hysterectomy for these lesions.

Wound of Femoral Artery and Vein.—A bullet severed the femoral artery and vein in this case ten weeks before Grover and Fisher saw the patient. The blood "came out in gushes." A doctor probed the wound, treated it with phenol, and bandaged it, which measure stopped the blood flow. One week later the patient felt a dull continuous pain at the site of injury and noticed a slight swelling of the affected thigh. The pain and swelling gradually increased, the pain becoming so intense as to render locomotion impossible. On entering the affected area, a large irregular reddish-black mass presented, resembling an old blood clot. As soon as this thrombus was out of place, a large stream of blood gushed forth. The blood was checked and seen to have come from the femoral artery. The femoral artery showed a longitudinal jagged rent, 3 cm. in length, and was open across its entire diameter; the accompanying vein was likewise torn open, but at a slightly lower level. The artery and vein were both ligated doubly, proximally and distally, and the injured portions removed. Three weeks after the operation, the patient walked freely, easily, without pain or limp; the popliteal and dorsalis pedis arteries were not palpable; the left leg felt warm, easily bled on pin prick and in every way seemed as normal as the right. Five months after operation he carried on his daily routine and had forgotten all about his wounded leg.

Archives of Dermatology and Syphilology, Chicago

8: 1-164 (July) 1923

*Biologic Reactions of Arsphenamin. VI. Reduction of Its Toxicity by Combination with Hydrophil Colloids. J. Oliver, S. S. Yamada and F. Kolos, San Francisco.—p. 1.
*Xanthoma and Hypercholesterinemia. W. H. Mook and R. S. Weiss, St. Louis.—p. 19.
*Multiple Onychia as Manifestation of Focal Infection: Experimental Production of Onychia in Rabbits. R. L. Haden and W. H. Jordan, Kansas City, Mo.—p. 31.
Elastic Tissue Simulating Mycelial Filaments in Skin Scrapings. I. R. Pels, and S. Bayne-Jones, Baltimore.—p. 37.
Tuberculous Paronychia: Report of Case with Unusual Features. J. H. Stokes, Rochester, Minn.—p. 44.
Rare Case of Recurrent Herpes. H. G. Rowell, New Bedford, Mass.—p. 48.
Study of Serum Flocculation Reactions in Syphilis with Special Reference to Meinicke, Sachs-Georgi, Kahn and Vernes Reactions. M. M. Strumia, Philadelphia.—p. 50.
*Wassermann Reaction in Leprosy: With Special Reference to New Complement-Fixation Technic. J. A. Kolmer and O. E. Denney, Philadelphia.—p. 63.
Lichen Planus of Glans Penis. D. W. Montgomery and G. D. Culver, San Francisco.—p. 73.
Lacquer Dermatitis or Dermatosis Industrialis (Papulovesicular Lacquer). J. T. Wayson, Honolulu, H. I.—p. 77.
*Heliotherapy in Psoriasis. H. E. Alderson, San Francisco.—p. 79.
Report of Cultures of Parasitic Fungi. A. M. Greenwood, Boston.—p. 81.

Reduction of Toxicity of Arsphenamin by Combining Gelatin.—Oliver and his associates assert that the combination of arsphenamin with hydrophil colloids reduces the toxicity of the drug. Gelatin, of the colloids examined, is the most effective in this regard. The decrease in toxicity is general as shown by the facts that: (*a*) the physical toxicity of arsphenamin is removed; (*b*) the chemical toxicity is reduced to three fifths; (*c*) the circulatory disturbances following its administration are markedly lessened.

Xanthoma and Hypercholesterinemia.—Three cases of xanthoma diabeticorum and three cases of xanthoma tuberosum are reported by Mook and Weiss. The cholesterin content of the blood was markedly increased in a case of xanthoma diabeticorm and in two cases of xanthoma tuberosum. The cholesterin was slightly increased in a case of xanthoma tuberosum associated with general arteriosclerosis, hypertension and myxedema. These results confirm the work of Burns. Excluding the palpebral type the authors believe that the xanthomas belong to the class of foreign body tumors. They are a cellular (connective tissue) reaction to the deposition of cholesterin bodies from the blood in cases in which a hypocholesterinemia is present. They are localized by motion and trauma.

Multiple Onychia a Focal Infection.—Two cases of multiple onychia are reported by Haden and Jordan. Onychia was produced in rabbits by the intravenous injection of streptococci isolated from the infected teeth of the patients.

Wassermann Reaction in Leprosy.—In a series of 159 cases of leprosy, clinical or serologic evidence of syphilis was found by Kolmer and Denney in twenty-seven, or 17 per cent. In nonsyphilitic lepers, the Wassermann reactions by a new technic were uniformly negative. With an old technic similar to the original Wassermann method, apparently falsely positive reactions occurred with 7.2 per cent. of serums. Since the new complement fixation reaction does not yield falsely positive reactions in leprosy, it is of value in differential diagnosis between cases simulating both leprosy and syphilis. A positive reaction in leprosy with the new method justifies the clinician in proceeding with antisyphilitic treatment without the mental reservation that he may be uselessly subjecting a leper to unnecessary or even harmful measures.

Heliotherapy in Psoriasis.—Experience in treating a large number of cases of psoriasis locally with the mercury quartz lamp during the last few years has convinced Alderson that this therapy constitutes a relatively satisfactory and cleanly method. While it is not invariably successful, psoriasis lesions clear up more effectively than under any other form of treatment, except roentgenotherapy. For various reasons Alderson prefers the former. Recurrences are delayed longer after successful ultraviolet light treatment. It is safer and more desirable when the scalp is involved. Compared with chrysarobin ointments, Alderson has found ultraviolet therapy preferable from every standpoint.

Archives of Ophthalmology, New York

52: 313-415 (July) 1923

Neurotic Disturbances of Eye Function. L. K. Lunt and A. F. Riggs, Stockbridge, Mass.—p. 313.
Embryology of Tenon's Capsule. I. Goldstein, New York.—p. 327.
Disease of Optic Nerve and Its Relations to Posterior Nasal Sinuses. Report of Four Cases Showing Uncertainty of Diagnosis. C. W. Cutler, New York.—p. 331.
Surgical Treatment of Glaucoma, with Special Reference to Modified Elliot-Lagrange Technic. D. T. Vail, Cincinnati.—p. 346.
Serous Tenonitis Complicated by Bilateral Papilledema. G. N. Brazeau, Milwaukee.—p. 355.
New Technic for Application of Reduced Silver Nitrate Method of Cajal to Section of Retina. F. F. Balbuena, Gijon, Spain.—p. 358.
Blepharochalasis. J. S. Friedenwald, Baltimore.—p. 367.

Atlantic Medical Journal, Harrisburg, Pa.

26: 649-722 (July) 1923

Renaissance of General Practitioner. S. R. Miller, Baltimore.—p. 649.
*Clinical Manifestations of Primary Cancer of Lung. W. W. G. MacLachlan, Pittsburgh.—p. 655.
Importance of Physical Factors in Prognosis of Renal Infections. L. Herman, Philadelphia.—p. 659.
Complete Tonsillectomy. R. Nebinger, Danville.—p. 672.
Roentgen-Ray Diagnosis of Gas Gangrene. A. Z. Ritzman, Harrisburg.—p. 676.
Prospects of Medical Career. B. M. Anspach, Philadelphia.—p. 679.
Schick Test. E. R. Wiese, Ingomar.—p. 684.
Hereditary Cataract as Mendelian Dominant: Report of Family. W. E. Carson.—p. 686.
Internal Derangement of Knee Joint. J. O. Wallace.—p. 689.
Herpes Zoster: Acute Posterior Ganglionitis. N. H. Clark.—p. 690.
Primary Carcinoma of Appendix. C. O. Anderson.—p. 691.
Heredity and Intelligence. E. E. Mayer.—p. 692.

Symptomatology of Primary Cancer of Lung.—Four cases form the bases of MacLachlan's paper. Pain was present in all the cases. The type of pain varied from a dull aching to an acute, agonizing, stabbing sensation, causing the patient to cry out. When the pain was dull, it was more or less constant; in two patients with the acute type of pain the attack assumed a periodic character. The seat of the pain in all cases seemed to lie deep in the chest, but in the acute types it was also referred at times to the epigastrium and to the left arm. These attacks became more frequent as the disease progressed, and appeared to be more intense; the narcotic used had to be given in much larger doses to allay the suffering. The pain occurred more often at night than during the day. Dyspnea was evident in all four cases on very slight exertion. This symptom progressed as the illness advanced. In one patient coughing was practically absent, but in the others it was evident, although somewhat variable in nature. Blood was present in the sputum in all the cases at some time during their course. In one case, "currant jelly" sputum was frequently seen, but in the other cases it was usually the bright red tinged sputum, often obtained after a paroxysm of coughing. The physical signs are not in themselves distinctive of neoplasm in the majority of cases. Dulness on percussion, usually unilateral over the lower lobe, diminished vesicular breathing and voice sounds, and a moderate number of râles appear to be most constant. It is MacLachlan's belief that the earliest recognition of a tumor having its origin in the lining of the accessible bronchi could be made by bronchoscopic examination. The roentgen-ray findings have been a disappointment.

Canadian Medical Association Journal, Montreal

13: 469-546 (July) 1923

*Living Sutures in Treatment of Hernia. W. E. Gallie and A. B. Le Mesurier.—p. 469.
Insulin: Its Action: Its Therapeutic Value in Diabetes, and Its Manufacture. Insulin Committee of University of Toronto.—p. 480.
*Dietetic Treatment in Diabetes Mellitus. W. R. Campbell.—p. 487.
Diagnostic Notes in Obstetrics and Gynecology. W. W. Chipman.—p. 493.
Some Aspects of Psychoneuroses. F. H. Mackay.—p. 495.
Use of Wassermann Reaction in Diagnosis of Syphilis. G. O. Scott and G. H. J. Pearson.—p. 501.
*Pellagra in Ontario: Report of Two Cases. G. H. Stevenson.—p. 504.
Some of Factors on Which Successful Use of Local Anesthesia Depends. R. E. Farr.—p. 507.
Diverticula of Alimentary Canal as Demonstrated by Roentgen-Ray Examination. A. E. Walkey.—p. 511.
Synchronous Rupture of Bilaterial Ectopics. L. H. Appleby.—p. 514.
*Unusual Arrangement of External Genitalia. L. H. Appleby.—p. 515.
Goiter with Hyperthyroidism. E. M. Eberts.—p. 516.

Living Sutures for Herniotomy.—By means of experimental research extending over several years Gallie and LeMesurier have demonstrated that strips of fascia constitute a suture material which is ideal for use in operations in which it is desired to hold together structures, such as the edges of hernial rings, which naturally tend to separate. It remains only for the surgeon to employ a technic which ensures that the suture is solidly anchored into unyielding tissue, such as healthy muscles and aponeurosis, and to make sure that a sufficient quantity of the suture is employed to withstand the anticipated strain and to completely fill the gap where the edges cannot actually be drawn together. The advantages of the living sutures are: Over catgut and similar sutures they have the great advantage that they are not absorbed and that they continue for all time to perform the function for which they were originally intended. Over silk and other nonabsorbable materials they have the advantage that they are composed of living tissue which is perfectly nonirritant, and that they heal solidly into the structures through which they pass without showing any tendency to cut out when subjected to ordinary physiologic strain. In operations designed to close gaps in which the edges cannot be drawn together the living sutures have the advantage over patch transplants in that they do not depend for their success on the process of healing by scar tissue, but solely on the mechanical grip which they obtain on the edges of the ring. By weaving the sutures across the gap, as in the darning of a sock, a wall of great strength can be constructed which can be depended on to resist successfully any ordinary degree of intra-abdominal pressure and any ordinary muscular strain.

Value of Diet in Treatment of Diabetes.—The principles underlying the dietetic treatment of diabetes mellitus are discussed by Campbell. These are equally applicable to the treatment of diabetics with insulin, and it is emphasized that without attention to proper dietetic regimens, insulin is capable of much harm. For the patient who can live on a properly balanced, adequate diet, insulin is available to protect him from emergencies arising in his disease. Types of diets are discussed and a simple method of calculating a standard diet for diabetics is suggested, together with its application in treatment.

Pellagra in Natives of Ontario, Canada.—One of Stevenson's patients had been psychotic for sixteen years. She had always been finicky about her food and at times refrained from eating for fear of being poisoned. She was ill about nine months, presenting symptoms that were thought to be due to autointoxication from being habitually constipated. Then diarrhea and weakness appeared, for which no cause was found and she was given a tonic and special diet and showed some improvement, but diarrhea continued intermittently until an acute attack set in. The patient developed a

pronounced asthenia and her mental state became one of confusion, disorientation and mild delirium. The diarrhea did not respond to treatment. The patient died. A necropsy was not obtained. In the second case a psychosis developed as one of the symptoms of pellagra. There was no known dietetic insufficiency although the woman had always lived in rather meager circumstances.

Malposition of Scrotum and Penis.—In Appleby's case the penis arose in the perineum posterior to the scrotum, which was attached unusually far forward on the pubes. The penis was very short, measuring one and one-half inches, and was normal in every respect, except that it was webbed, the web extending between the median perineal raphé and the under surface of the penis, and was attached as far back as the anal margin; it was quite lax, sufficiently so to permit erection. The position of the meatus was normal in relation to the penis. The scrotum was large and well formed and when the patient stood erect it completely concealed the penis. It was to all intents and purposes a normal scrotum, except that it was placed unusually far forward and anterior to the penis. The scrotum was not bifid; it was rugose, and the usual median raphé and septum were present. The penile web was also rugose, and the probability is suggested by Appleby that developmentally it is the true scrotum, the functioning scrotum having been developed from the pubic mons veneris.

Colorado Medicine, Denver

20: 171-202 (July) 1923

Importance in General Medicine of Headaches Originating from Eye, Nose and Throat Diseases. F. R. Spencer.—p. 175.
Complete Immobilization Treatment in Pulmonary Tuberculosis. Report of Cases. S. Swezey, Denver.—p. 186.
Faulty Posture Causing Abdominal Pain Simulating Symptoms Associated with Visceral Pathology. C. E. Tennant, Denver.—p. 191.

Iowa State Medical Society Journal, Des Moines

13: 261-324 (July 15) 1923

Some Variations in Thoracic Content as Observed in Anatomic Laboratory. H. J. Prentiss, Iowa City.—p. 261.
Diagnosis in Right Upper Quadrant. J. C. Shellito, Independence.—p. 267.
Obstruction of Nasal Passages, Especially the Upper Regions. H. W. Ivains, Cedar Rapids.—p. 272.
*Anomalies of Esophagus: Report of Case. T. D. Kas, Sutherland, and H. L. Avery, Pringhar.—p. 275.
Surgical Reconstruction of Paralytic Upper Extremity. A. Steindler, Iowa City.—p. 277.
Physicians Who Located in Iowa in Period Between 1860 and 1870. D. S. Fairchild, W. F. Peck and W. D. Middletown.—p. 279.
Communicable Diseases Among Students of University of Iowa. C. R. Thomas, Iowa City.—p. 282.
Iodin in Treatment of Syphilis. R. E. Jameron, Davenport.—p. 284.

Anomaly of Esophagus.—In the case recorded by Kas and Avery the upper end of the esophagus, about 1 inch long, and in a normal position, terminated in a blind pouch resembling a test tube. The lower end inclined forward, and formed a perfect anastomosis at the bifurcation of the trachea, the lower margin of the anastomosis being on a level with the apex of the bifurcation triangle. The lumina of the two segments of the esophagus were of equal size. The lungs showed the conditions found in early hypostatic pneumonia. All other findings were negative.

Journal of Biological Chemistry, Baltimore

56: 1-296 (May) 1923

*Preparation and Comparison of Standards for Estimation of Creatin and Creatinin. G. Edgar, University, Va.—p. 1.
Lipase Studies. II. Comparison of Hydrolysis of Esters of Dicarboxylic Acids by Lipase of Liver. E. C. Hyde and H. B. Lewis, Urbana, Ill.—p. 7.
*Variations in Distribution of Nonprotein Nitrogenous Constituents of Whole Blood and Plasma During Acute Retention and Elimination. E. D. Plass, Baltimore.—p. 17.
*Chemical Constituents of Saliva as Indices of Glandular Activity. J. L. Morris and V. Jersey, Cleveland.—p. 31.
Experiments on Catabolism of Caproic Acid and Its Derivatives. H. D. Dakin, Scarborough-on-Hudson, N. Y.—p. 43.
*Endothermic Reaction Which Accompanies Appearance of Visible Curd in Milks Coagulated by Heat. A. Leighton and C. S. Mudge, Washington, D. C.—p. 53.
Preparation of Tryptophane from Products of Hydrolysis of Lactalbumin with Baryta. H. C. Waterman, Washington, D. C.—p. 75.
Proteins of Cantaloup Seed, Cucumis Melo: Isolation of Crystalline Globulin and Comparative Study of This Globulin with Crystalline Globulin of Squash Seed, Cucurbita Maxima. D. B. Jones and C. E. F. Gersdorff, Washington, D. C.—p. 79.
*Phosphorus Compounds in Normal Blood. M. V. Buell, Baltimore.—p. 97.
*Quantitative Method for Determination of Phenols in Blood. N. W. Rakestraw, Stanford University, Calif.—p. 109.
Chemical Factors in Fatigue. II. Further Changes in Some of Blood Constituents Following Strenuous Muscular Exercise. N. W. Rakestraw, Stanford Univ., Calif.—p. 121.
Trap for Van Slyke Gas Analysis Apparatus. A. T. Shohl, New Haven, Conn.—p. 125.
Studies in Narcosis. I. Ether Analysis. T. K. Kruse, Pittsburgh.—p. 127.
*Id. II. Method for Determination of Respiratory Exchange During Ether Narcosis. T. K. Kruse, Pittsburgh.—p. 139.
New Sulphur Containing Amino-Acid Isolated from Hydrolytic Products of Protein. J. H. Mueller, New York.—p. 157.
Physiology of Muscular Exercise. IV. Blood Reaction and Breathing. D. P. Barr, New York.—p. 171.
Determination of Amino Nitrogen in Compounds Reacting Slowly with Nitrous Acid. D. W. Wilson, Baltimore.—p. 183.
Determination of Free Amino Nitrogen in Proteins. D. W. Wilson, Baltimore.—p. 191.
*Spontaneous Crystalization of Bence-Jones Protein. D. W. Wilson, Baltimore.—p. 203.
Studies in Pyrimidine Metabolism. D. W. Wilson, Baltimore.—p. 215.
Studies in Creatin and Creatinin Metabolism. V. Metabolism of Creatin. S. R. Benedict and E. Osterberg, New York.—p. 229.
Aqueous Extracts of Pancreas. I. Influence on Carbohydrate Metabolism of Depancreatized Animals. J. R. Murlin, H. D. Clough, C. B. F. Gibbs and A. M. Stokes, Rochester, N. Y.—p. 253.

Method for Making Creatinin Zinc Chlorid.—A new and simple method has been devised by Edgar for the preparation of creatinin zinc chlorid. The advantages of creatinin zinc chlorid and creatinin picrate as standards are emphasized.

Nonprotein Nitrogenous Constituents of Blood in Toxemia of Pregnancy.—The extremely rapid changes in concentration of the nonprotein nitrogenous constituents of the blood during recovery from the so-called "late toxemias of pregnancy," have been studied by Plass by simultaneous analyses of whole blood and plasma, and it has been demonstrated that these substances pass from cells to plasma, and in the reverse direction, so slowly, that at times the usual relationships are disturbed. It is particularly emphasized that the blood corpuscles are storehouses into which material accumulated in the plasma may be deposited temporarily, and from which the excess may later be removed rapidly. Under such conditions it is obviously important to attack the study of certain metabolic problems from the standpoint of the blood cells as well as of the plasma.

Uric Acid Is Index of Gland Metabolism.—The data presented by Morris and Jersey seem to justify the working hypothesis that uric acid, more than any other constituent, represents the actual cellular activity and might well serve as an index of gland metabolism.

Salts of Milk Determine Its Stability to Heat.—Leighton and Mudge feel justified in hazarding the opinion that the controlling factor which determines the stability of milks toward the action of heat is the equilibrium of the salts of the milk, and that the effects of forewarming on the stability of milk samples under further heating are the effects produced by altering this equilibrium. Since sucrose solutions dissolve calcium phosphate and citrate, and since sucrose can also form compounds with both calcium and phosphorus, it seems probable that the effect of cane sugar in condensed milk samples, as regards the stability of the samples, will also be explained by the action of the sugar on that equilibrium. The authors believe that any denaturation or dehydration of the protein before precipitation by heat is a secondary reaction.

Phosphorus Compounds in Normal Blood.—Evidence has been obtained by Buell which supports the conclusion that in the corpuscles of normal dog's blood there is no inorganic phosphate and in the plasma there is no organic phosphate. Although solutions of human corpuscles were not obtained which were entirely free from inorganic phosphate (as was the case with dog's corpuscles), the small amounts found, taken together with the established ease of decomposition of the organic phosphate of the corpuscles, suggest that in the living organism there is no inorganic phosphate in human corpuscles, and that the small amounts found represent postmortem changes. This point of view is not in keeping with the statement that the concentration of inorganic phosphate of serum and of whole blood in fresh specimens is identical.

Determination of Phenols in Blood.—Determinations were made by Rakestraw of the following constituents in the blood of nine men before and after a short period of strenuous muscular exercise; uric acid, sugar, amino-acids, chlorids and free and conjugated phenols. Samples were taken at intervals up to one and one-half hours following the exercise. Uric acid was found to increase continuously over the period of observation; sugar increased immediately following the exercise, but fell below normal at the end of one and one-half hours. None of the other constituents altered significantly with the possible exception of a slight increase in chlorids immediately following the exercise.

Respiratory Exchange Under Ether Narcosis.—A method is described by Kruse which is suitable for the study of the respiratory exchange in etherized animals with a preliminary report of results obtained on animals in various stages of reduction.

Spontaneous Crystallization of Bence-Jones Protein.—A Bence-Jones protein was found by Wilson which crystallized spontaneously from the urine in which it was excreted. Dried preparations were made which could be recrystallized. Attempts were made to crystallize other Bence-Jones proteins, but without success. The crystalline Bence-Jones protein contained a ratio of amino-nitrogen to total nitrogen of 4.86 per cent. This, in Wilson's opinion, is added evidence that the compound should be classed as protein and not as an albumose.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

21: 263-376 (June) 1923

Entrance of Convulsant Dyes into Substance of Brain and Spinal Cord After an Injury to These Structures. H. C. Syz, Baltimore.—p. 263.
*Effect of Quinin Intoxication on Respiratory Center of Rabbit. H. Sugata and A. L. Tatum, Chicago.—p. 293.
*Experimental Research on Distribution and Elimination of Organic Arsenic Compounds After Intravenous Administration. F. M. Bulmer, Toronto.—p. 301.
*Histologic Changes Produced Experimentally in Rabbits by Bismuth. B. Lucke and J. V. Klauder, Philadelphia.—p. 313.
Barbital Narcosis and Hypothermia in Pigeons. M. M. Ellis, Columbia, Mo.—p. 323.
*Respiratory Exchange and Blood Sugar Curves of Normal and Diabetic Subjects After Epinephrin and Insulin. R. S. Lyman, E. Nicholls and Wm. S. McCann, Baltimore.—p. 343.
*Rôle of Liver in Removal of Hemoglobin from Blood Stream. S. M. Rosenthal, Baltimore.—p. 367.

Effect of Quinin on Respiratory Center.—Quinin appears to increase the irritability of the respiratory center: (*a*) reflex response to afferent vagus impulses—increasing rate at the expense of depth and leading to underventilation, (*b*) in absence of vagal influences the increased irritability of the respiratory center to "hormone" action causes excessive or overventilation.

Distribution of Arsenic After Intravenous Administration.—The salient features in the distribution of arsenic, Bulmer says, are its high concentration in the liver very shortly after injection; the rapid lowering of this concentration presumably by the elimination of the arsenic by the bile; the relatively large amount in the lungs, especially after large doses, and the maintenance of a high arsenic content here, over a period of at least several days; and its retention by the long bones over a longer period than shown by any other tissue analyses. The migration of arsenic to the lungs might suggest an expiratory channel of excretion. The retention of arsenic in the long bones is, perhaps, significant in view of the therapeutic use of arsenic in anemias. The well known fact that liver tissue is impaired by arsenic might, in itself, suggest that the liver function in arsenic elimination is of some importance.

Changes in Tissues Produced by Bismuth.—The histologic changes produced in rabbits by several compounds of bismuth employed in the treatment of human syphilis are reported by Lucke and Klauder. Lethal doses of the drug, in aqueous solution or oil suspension, were administered. Injections were made intramuscularly as well as intravenously. All animals died within sixteen days after poisoning. Lesions of similar character were constantly found in the kidneys and in the liver, while in the other organs examined the tissue changes were inconstant and inconspicuous. There was considerable variation in the degree of severity, depending mainly on the length of survival of the animals. In general, the tissue changes were most pronounced in animals surviving the injection four or more days. The difference in route of administration or in the compound of bismuth injected did not produce essential differences in the character of the histologic lesions, so that the injuries found may be ascribed to the toxic action of bismuth rather than to any one compound or method of administration. It is concluded that caution should be used in the administration of bismuth compounds to patients suffering from renal disease.

Effect of Insulin on Respiratory Exchange.—Injection of both insulin and epinephrin showed an antagonistic effect in their action on respiratory exchange, level of blood sugar and circulatory changes. The total result was the summation of the two factors. In the case of two diabetic patients, epinephrin failed to terminate a condition of hypoglycemia which was brought on by insulin, the blood sugar percentage continuing to decrease after epinephrin was administered.

Rôle of Liver in Removal of Hemoglobin.—The disappearance of hemoglobin from the blood serum following its injection intravenously has been studied in twelve normal rabbits. In a dosage of from 22 to 60 mg. per kilogram of body weight there was practically complete removal in four hours. Ligation of the main liver, comprising 78.8 per cent. of the total liver substance, caused a marked delay in this rate of departure of hemoglobin from the blood. In five rabbits with the main liver ligated, an average of 43 per cent. of the amount injected was present in the serum four hours after injection.

Journal of Radiology, Omaha

4: 183-220 (June) 1923

Study of Lung Abscess by Serial Radiographic Examination. L. R. Sante, St. Louis.—p. 183.
Studies of Effect of Roentgen Rays on Glandular Activity. A. C. Ivy, B. H. Orndoff, A. Jacoby and J. E. Whitlow, Chicago.—p 189.
Diaphragmatic Nontraumatic Hernia. Report of Four Cases. E. H. Kessler, St. Louis.—p. 199.
Comparative Measurements of Intensity and Hardness of Roentgen Rays Produced by Different Types of American Transformers. A. Bachem, Chicago.—p. 202.

Kansas Medical Society Journal, Topeka

23: 173-200 (July) 1923

Postoperative Pulmonary Embolism. J. L. Caline, Wellington.—p. 173.
Ureteral Stricture. E. A. Pickens, Wichita.—p. 175.
Legislative Lobbying. J. C. Moorhead, Neodesha.—p. 179.
Focal Infection of Dental Origin and Principles Governing Its Removal. W. L. Shearer, Omaha.—p. 182.
Laboratory Examination of the Blood, and Interpretation of Laboratory Findings. T. R. Conklin, Abilene.—p. 185.

Missouri State Medical Association Journal, St. Louis

20: 215-262 (July) 1923

Iletin Treatment of Diabetes. D. R. Black, Kansas City.—p. 218.
New Methods of Diagnosing Early Pregnancy. W. C. Gayler, St. Louis.—p. 223.
Pregnancy and Tuberculosis. O. H. Schwarz, St. Louis.—p. 227.
Skin Diseases and Their Importance to General Practitioner: Considered from Viewpoint of Dermatologist. R. C. Lounsberry, Springfield.—p. 233.

New Orleans Medical and Surgical Journal

76: 1-55 (July) 1923

Health Relations of Louisiana with South American Countries. O. Dowling, New Orleans.—p. 1.
Venereal Disease Control. A. T. McCormack, Louisville, Ky.—p. 2.
Malaria Control Work in Alabama. S. W. Welch, Birmingham.—p. 6.
Conservation of Child Health. W. S. Leathers, Jackson, Miss.—p. 9.
Health Education. R. T. Lucas, Shreveport, La.—p. 16.
Swimming Pools and Infection. W. H. Seemann, New Orleans.—p. 18.
Headache: Study. G. H. Upton, New Orleans.—p. 21.
Charity Hospital of Louisiana. A. E. Fossier, New Orleans.—p. 24.
Treatment of Diabetes Mellitus with Insulin (Iletin). I. I. Lemann, New Orleans.—p. 31.
Dosage and Methods of Administration of Insulin. A. Eustis, New Orleans.—p. 35.
Treatment of Diabetes Mellitus with Insulin (Iletin). U. W. Giles, New Orleans.—p. 39.

New York State Journal of Medicine, New York

23: 286-324 (July) 1923

Recent Progress in Communicable Diseases of Childhood. C. Herrman, New York.—p. 285.
*Leukocytosis of Internal Hemorrhage. A. M. Wright and E. M. Livingston, New York.—p. 286.

Physiologic Effects of Radiant Energy, Especially on Human Eye. C. Sheard, Southbridge, Mass.—p. 292.
*Incidence of Cancer of Cervix in Pregnancy. B. C. Hirst, Philadelphia.—p. 300.
Chemical Surgery in Chronic Cervical Endometritis, with Rationale, Technic and Case Reports. C. W. Strobell, New York.—p. 303.
Certain Criteria of Management in Prostatic Carcinoma. E. M. Watson and C. C. Herger, Buffalo.—p. 309.
Treatment of Syphilis in Dannemora State Hospital. T. R. Reed, Dannemora.—p. 312.

Leukocytosis of Internal Hemorrhage.—The problem concerning the exciting factor or factors in the nonseptic type of leukocytosis was studied by Wright and Livingston through clinical observations checked by operation or necropsy, and by means of experiments. The clinical charts covered fracture of the base of the skull, pachymeningitis interna hemorrhagica and ruptured ectopic gestation. The experimental data represent a study of leukocytosis due to hemorrhages within serous cavities—the dura mater, peritoneum, pleural and joint cavities. The general conclusions reached from this study are: (1) A hemorrhage within a serous cavity always results in a high leukocytosis. (2) This leukocytic reaction presents a characteristic curve reaching a height of from 150 to 300 per cent. increase within the first ten hours and returning to normal by the fourth day. (3) In any disease with a recent intraserous blood clot an early leukocytosis, from 150 to 300 per cent. increase, is present and constitutes an important diagnostic sign. In the interpretation of this sign the leukocytic curve must be constantly in mind—two counts being made during the first six hours, if possible, and subsequent counts daily during the next three days. Following a cranial injury, such an immediate high leukocytosis constitutes presumptive evidence of intradural bleeding and of fracture of the base of the skull; the absence of such an immediate high count excludes fracture of the base of the skull.

Cancer of Cervix in Pregnancy.—Among about 40,000 cases of pregnancy Hirst has seen only three cases of carcinoma of the cervix late in pregnancy. Among 134,000 cases in the Lying-In Hospital of New York there were only four cases of cancer of the cervix.

Ohio State Medical Journal, Columbus

19: 481-552 (July 1) 1923

Acute Abdomen and Its Pitfalls. M. E. Blahd, Cleveland.—p. 485.
Diagnostic and Prognostic Value of Breath Holding Test. F. H. McMechan, Avon Lake.—p. 489.
Charcot Joint Following Trauma. C. H. Heyman, Cleveland.—p. 496.
Uses of Radium in Malignant and Nonmalignant Conditions: With Particular Reference to Gynecology. F. I. Shroyer, Dayton.—p. 498.
Headaches of Sinus Origin. E. D. Allgaier, Cincinnati.—p. 503.
Physiologic Effects of Massage. T. Burstein, Cleveland.—p. 505.
Alopecia and Its Treatment. L. K. McCafferty, New York.—p. 508.
Public Health Purchasable—Is It Salable? B. Marquette, Cincinnati.—p. 512.
Public Health Nurse. O. M. Craven, Springfield.—p. 515.

Tennessee State Medical Association Journal, Nashville

16: 81-121 (July) 1923

*Gangrene of Extremities Complicating Pneumonia. Sam P. Bailey, Nashville.—p. 89.
Hypophysis; Some of Its Disorders. M. L. Graves, Galveston, Texas.—p. 93.
Routine Gynecologic Patient. C. N. Cowden, Nashville.—p. 99.
*Splenectomy: Report of Case. J. B. Haskins, Chattanooga.—p. 107.
Intrahepatic Cholelithiasis. Fred C. Watson, Memphis.—p. 109.
Hemorrhage In and Around Nerve Tissue. Hazle Padgett, Nashville.—p. 112.

Gangrene of Toes Complicating Pneumonia.—Bailey reports a case of lobar pneumonia involving the upper lobe of the right lung, complicated by superficial gangrene of the first three toes on the right foot and the first two toes on the left foot and by bilateral, acute, purulent, otitis media. The patient recovered without loss of any of his toes.

Splenectomy for Movable Spleen.—In Haskins' case the spleen was removed because of its great mobility. It had a pedicle fully 4 inches long. The symptoms which led to the operation were those usually manifested in cases of twisted pedicle.

Virginia Medical Monthly, Richmond

50: 221-280 (July) 1923

Allergy in Asthma and Hay-Fever. R. A. Kern, Philadelphia.—p. 221.
Leprosy. Report of Case. D. C. Smith, Charlottesville.—p. 228.
*New Therapeutic Agent; Therapeutic Swing. P. B. Barringer, Charlottesville.—p. 232.
Case of Division of Posterior Sensory Root of Gasserian Ganglion for Trificial Neuralgia. M. D.'A. Magee, Washington, D. C.—p. 236.
*Activities of the Tuberculosis Division of the Health Bureau, Department of Public Welfare, Richmond, Va. W. N. Mercer, Richmond.—p. 243.
Roentgen Ray in Treatment of Certain Types of Metrorrhagia. F. M. Hodges, Richmond.—p. 247.
Identification of Clostridium Tetani (Bacillus Tetani). G. F. Reddish, Richmond.—p. 250.
Case of Rupture of Uterus. R. H. Dunn, South Charleston, W. Va.—p. 253.
Importance of Early Recognition, Diagnosis and Treatment of Mental Disorders. W. C. Ashworth, Greensboro, N. C.—p. 255.
Ministers to Sick. W. J. Mallory, Washington, D. C.—p. 257.
Conservation of Life. R. H. Garthright, Vinton.—p. 262.
Etiology of Benign Stricture of Esophagus. P. P. Vinson, Rochester, Minn.—p. 265.

Therapeutic Swing.—Barringer discusses the benefits that may be derived from sleeping on the abdomen, both in health and ill health. He has devised a so-called "therapeutic swing" on which patients are placed for varying periods of time as part of the plan of treatment of constipation and vascular hypertension.

Activities of Tuberculosis Division of Health Bureau.—Mercer emphasizes the advantages to be gained not only by the private practitioner and the community in general, but also by the tuberculous patients themselves, when the full cooperation of physicians is given with various activities of the city health bureau. The Tuberculosis Division of the Health Bureau, Department of Public Welfare, Richmond, Va., has a well organized and efficient free tuberculosis clinic; it has two full-time tuberculosis nurses and eight nurses who devote part of their time to this work; a specific appropriation for tuberculosis work; a full-time director of a separate division of tuberculosis; and a municipal sanatorium for white, and one for colored tuberculous patients. Instruction in the prevention of tuberculosis is given by the clinic staff to all who attend the clinic. During the past winter a course of instruction in the diagnosis, prevention and treatment of tuberculosis was given to a class of physicians, weekly, at the clinic, and practical demonstrations of selected cases served to make the course of more practical benefit. Physicians may accompany or refer their patients for a thorough examination of the chest and throat. Private consultation with private physicians throughout the city is available in cases of suspected or complicated tuberculosis when patients are confined to their homes, or unable to go to the clinic. Patients who are unable to pay, and patients presenting surgical or other complications needing correction, are admitted to the city hospital, if necessary, when this action is sanctioned by the attending physician.

West Virginia Medical Journal, Huntington

18: 1-56 (July) 1923

Variation of Conception of Medical Education. J. N. Simpson, Morgantown.—p. 1.
End Results of Labor with Respect to Soft Parts of Passage. W. N. Rowley, Huntington.—p. 8.
Athrepsia. O. B. Lynch, Beckley.—p. 12.
Surgical Gallbladder. R. J. Wilkinson, Huntington.—p. 16.
Removal of Tonsils. N. R. Price, Marlinton.—p. 25.
Gastric and Duodenal Ulcer. W. R. Goff, Parkersburg.—p. 26.

Wisconsin Medical Journal, Milwaukee

22: 59-104 (July) 1923

Relationship of Women's Diseases to Chronic Patient. C. Culbertson, Chicago.—p. 59.
Benign Hypertrophy of Prostate Gland; Preoperative Care. I. B. Sisk, Madison.—p. 62.
Treatment and Results in Fractures. J. M. Dodd, Ashland.—p. 65.
Rôle of Unsuspected Syphilis in Otolaryngology. J. E. Mulsow, Milwaukee.—p. 68.
Fundamentals in Cardiac Diagnosis. E. F. Mielke, Appleton.—p. 72.
Case of Ventral Hernia of Large Size with Operative Cure. H. E. Burger, Beloit.—p. 85.
Unusual Solitary Subjective Manifestation of Thyrotoxicosis. H. M. Coon, Madison.—p. 85.
Health Education. W. D. Stovall, Madison.—p. 87.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

17: 113-301 (July 12) 1923

Revision of Amphistomata of Mammals. P. A. Maplestone.—p. 113.
*Malaria in Australia. P. A. Maplestone.—p. 213.
Coccidiosis of Cats and Dogs and Status of Isospora of Man. C. M. Wenyon.—p. 231.
Further Note on Occurrence of Ancylostomes Resembling Necator Americanus Amongst Domestic Pigs in Amazonas. R. M. Gordon.—p. 289.
Case of Acute Ascending Paralysis in Chimpanzee. S. Adler and E. J. Clark.—p. 299.

Malaria Infrequent in Australia.—As far as can be gathered from the incomplete and unreliable records available, Maplestone says, malaria is only mildly endemic in Australia north of 19 degrees south latitude. *Anopheles annulipes* and *A. bancrofti*, the only two possible malaria carriers in Australia under present conditions, are much more widely distributed than is malaria. In various localities north of 19 degrees south latitude small epidemics of malaria occur from time to time; these outbreaks are of short duration; their origin is generally traceable to the introduction of malaria carriers from abroad; the disease does not spread to adjoining camps and towns, and soon dies out, without the institution of active antimalarial measures.

Archives of Radiology and Electrotherapy, London

27: 1-32 (June) 1923

Histologic Pictures Representing Cure of Uterine Basocellular Epithelioma. F. Daels.—p. 1.
Case of Osteitis Deformans. H. W. Jones.—p. 17.
Artificial Pneumopericardium. R.W. A. Salmond.—p. 20.
Pulmonary Tuberculosis as Shown by Roentgen Rays, but Without Physical Signs. S. Melville.—p. 23.
Some Effects of Exposure to Radium on Alimentary Canal. J. C. Mottram.—p. 28.

British Journal of Surgery, Bristol

11: 1-196 (July) 1923

Eponyms. IX. Pott's Disease of Spine. D'A. Power.—p. 1.
*Flow of Lymph from Ileocecal Angle, and Its Possible Bearing on Cause of Duodenal and Gastric Ulcer. L. R. Braithwaite.—p. 7.
*Unilateral Fused Kidney and Allied Renal Malformations. M. J. Stewart and S. D. Lodge.—p. 27.
*Metastatic Tumors of Bone. C. A. Joll.—p. 38.
Depressed Fracture Over Angular Gyrus; Clinical and Radiological Localization. A. P. Bertwistle.—p. 73.
*Operation for Hemorrhoids. K. W. Monsarrat.—p. 77.
*Retrograde Intussusception of Small Intestine After Gastro-Enterostomy. H. Drummond.—p. 79.
*Chronic Mastitis. G. Keynes.—p. 89.
Congenital Ileocecal Cysts. H. F. MacAuley.—p. 122.
Sarcoma of Long Bones. S. G. Shattock.—p. 127.
*Nomenclature of Diseased States Caused by Certain Vestigial Structures in Neck. J. E. Frazer.—p. 131.
Femoral Hernia and Saccular Theory. R. H. Russell.—p. 148.
Malignant Disease of Upper Jaw: Operative Technic. E. M. Woodman.—p. 153.
Closure of Suprapubic Urinary Fistula Following Suprapubic Prostatectomy: Observations on Six-Eight Cases. H. P. W. White.—p. 173.
Acute Hemorrhagic Pancreatitis. A. G. T. Fisher.—p. 179.
Case of Jejunal Diverticula. L. R. Braithwaite.—p. 184.
Unusual Cause of Death (Septic Thrombosis of Iliac Vein) in Acute Appendicitis. C. H. Whiteford.—p. 189.
Perforation of Meckel's Diverticulum: Recovery. D. Drew—p. 190.

Flow of Lymph from Ileocecal Angle and Bearing on Cause of Gastric and Duodenal Ulcer.—In a case presenting the usual signs and symptoms of acute appendicitis, immediate operation was performed by Braithwaite. The appendix was slightly congested but otherwise apparently normal. The ileocecal glands were jet black, and a chain of jet black glands could be traced up to the duodenum and the superior mesenteric vessels where they cross it. In addition, two of the glands on the greater curvature of the stomach, two inches from the pylorus, were black. This case certainly suggested that there must be some lymphatic path whereby the pigment could travel to the stomach. It also suggested that if pigment could reach this area from the appendix, infection could do the same thing. This belief led Braithwaite to study the normal flow of lymph from the ileocecal angle in a perfectly healthy subject, as gleaned from postmortem injections—largely in the fetus—and by experiments in both living and dead subjects, to find out (1) whether aberrant paths existed; and (2) what effect disease of lymph vessels or glands would have on the lymph flow. The result has been a new anatomic picture, and the suggestion that duodenal and gastric ulcer, and other forms of dyspepsia, may be caused by toxin forming conditions in the ileocecal region.

Congenital Abnormalities of Kidney.—The congenital renal abnormalities found in a consecutive series of 6,500 postmortem examinations are described by Stewart and Lodge. The list includes fourteen cases of horse-shoe kidney, one case of unilateral fused kidney, sixteen cases of congenital abscence of one kidney, and three cases of "pelvic" kidney. The cases in which a horse-shoe kidney was found are compared with those in which one organ was congenitally absent with respect to (*a*) the incidence of renal disease, and (*b*) the age at death. The case of unilateral fused kidney is described in detail, and the published cases of this condition are collected and reviewed.

Metastatic Tumors of Bone.—Joll shows that a knowledge of bone metastases, their mode of production, the types of neoplasms which give rise to them, and their special clinical manifestations, is essential not only in the study of pathology, but also in the practice of surgery. Of 1,144 cases of malignant disease, fifty-three presented bone metastases. In thirty-four of these cases the primary tumor was situated in the breast. The vertebrae were involved most often—21.6 per cent. of the cases. Next in order were: ribs, 20.4 per cent.; sternum, 14.7 per cent.; femur, 14.7 per cent.; skull, 10.2 per cent.; humerus, 7.9 per cent.; pelvis, 4.5 per cent.; tibia, 2.2 per cent.; mandible, 1.1 per cent.; scapula, 1.1 per cent.; clavicle, 1.1 per cent.

Operation for Hemorrhoids.—Monsarret excises the varices and sutures the raw edge of mucous membrane to the skin edge. The external sphincter is brought fully into view by this method and cannot be injured.

Retrograde Intussusception of Small Intestine Following Gastro-Enterostomy.—The history of a previously performed gastro-enterostomy, often of many years standing, followed by sudden griping epigastric colic, vomiting of blood, often a palpable tumor in the left hypochondriac region with absence of rigidity, distention, and acute tenderness, Drummond says, suggest the diagnosis of retrograde intussusception of the small intestine. Fourteen cases have been recorded. To these Drummond adds one case. The type of gastro-enterostomy performed has nothing to do with the occurrence of the ascending intussusception. In all probability the ascending intussusception is produced by too rapid emptying of the stomach, causing irritation of the jejunum, and setting up forcible antiperistalsis. Diagnosis is straightforward, and should, now that the condition has been recognized, be made easily. The treatment is immediate operation.

Cause of Chronic Mastitis.—The theory advanced by Keynes as a possible cause of this condition is the anatomic construction of the breast, which reacts, in its turn, on the normal physiologic mechanisms. The normal, nonlactating breast has no outlet through the nipple for the discharge of its secretions. Secretion must, therefore, be balanced normally by reabsorption. Chronic mastitis is manifested by dilatation of ducts and acini, accumulation in them of the products of epithelial activity, infiltration with lymphocytes, fibrosis and epithelial changes. Distribution of all these is very erratic. The cause of chronic mastitis is probably to be found in chemical irritation due to stagnating secretions and epithelial debris. This cannot be proved until the chemical changes have been investigated. Chronic mastitis is the underlying cause of many lesions usually described as clinical entities, such as simple cyst, papilliferous cyst, or galactocele. Chronic mastitis, though very often associated with carcinoma, has not been proved to be "precancerous." Both may be due to the same cause.

Vestigial Cyst Not "Branchial" Cyst.—Frazer objects to the use of the terms "branchial cyst," "branchogenetic," etc. He prefers more accurately descriptive terms. Thus, a persistent and open canal of His would be described properly as a median or paramedian vestigial entodermal sinus. The common "branchial cyst" in the neck would become a lateral

vestigial cyst, ectodermal or entodermal, as the case might be. A cystic distention of a persistent remnant of the first groove would be a right or left subtubal vestigial (entodermal) cyst. The same idea in terminology would come in, with descriptive accuracy, in fistula or carcinoma or in any other condition associated with vestigial structures.

China Medical Journal, Shanghai

37: 453-540 (June) 1923

Life Cycle of Fasciolopsis Buski (Human) in China. C. H. Barlow.—p. 453.
Indications for Tonsillectomy. H. R. Slack.—p. 473.
Indications for Tonsillectomy. K. H. Digby.—p. 475.
Artificial Limbs Made by Chinese Brass Smiths. H. Neuffer.—p. 480.
Toxicology in China. B. E. Read.—p. 481.

Edinburgh Medical Journal

30: 265-312 (July) 1923.

*New Gastroduodenal Technic. R. K. S. Lim, A. R. Matheson and W. Schlapp.—p. 265.
Some Ancient Mineral Wells in Scotland. W. G. A. Robertson.—p. 276.
Case of Bilateral Iliac Abscess Treated by Oxygen Inflation. W. R. Stewart.—p. 281.
Radiotherapy in Gynecology. W. F. T. Haultain.—p. 289.

New Gastroduodenal Technic.—Lim and his associates employ two tubes, one in the stomach and the other in the duodenum, and apply continuous suction simultaneously to both. The continuous removal of the gastric contents almost entirely obviates loss of juice through the pylorus, while the continuous withdrawal of duodenal contents prevents the accumulation of secretion, which might in the ordinary course of events be regurgitated. Since the whole of the juice secreted by the stomach is obtainable in a pure state by this method, it becomes possible to supplement percentage or relative figures for hydrochloric acid, pepsin, etc., with a statement of the total output. Histamin solution is injected subcutaneously. Before giving the test, at least four ten minutes' observations should be carried out on the unstimulated stomach. It is then necessary to continue for about one and a half hours, by which time the effect of the drug on the stomach has subsided. The juices collected may be analyzed in any desired manner and the curves of the secretory response plotted.

Glasgow Medical Journal

18: 1-63 (July) 1923

Case of Diverticulum of Bladder. J. M. Renton.—p. 1.
Hitherto Unpublished Letter by Dr. Robert Knox, the Anatomist, 1791. 1862. A. M. Adams.—p. 5.
Trauma as Factor in Etiology of Sarcoma. Report of Cases. J. Patrick and J. A. G. Burton.—p. 8.
Health Visitors in Scotland. D. McKail.—p. 19.

Journal of Laryngology and Otology, Edinburgh

38: 341-404 (July) 1923

Radical Frontal Sinus Operation. W. G. Howarth.—p. 341.
Osteitis Deformans and Otosclerosis. G. J. Jenkins.—p. 344.
Foundations of Otology: Work of Flourens. W. J. C. Nourse.—p. 354.
Mucocele of Frontal Sinus. C. Thomson and C. H. M'Ilraith.—p. 365.

Journal of State Medicine, London

31: 251-300 (June) 1923

Treatment of Syphilis. D. Lees.—p. 251.
Problem of Syphilitic Child. G. D. Kettlewell.—p. 260.
Disposal of Waste Water with Especial Reference to Ablution Places, Laundries and Cookhouses. T. S. Dudding.—p. 265.
Diphtheria in Bristol. D. S. Davies.—p. 276.
Destruction of Animal Carriers of Disease. F. W. W. Dawsonfi—p. 282.

31: 301-350 (July) 1923

Organization of Industry. Riddell.—p. 301.
Naval, Military, Air and Tropical Diseases. A. T. Sloggett.—p. 334.
Women and Public Health. D. Wood.—p. 337.

Journal of Tropical Medicine and Hygiene, London

26: 227-232 (July 2) 1923

*Discovery of New Type of Germ Isolated from Cases of Measles and Scarlet Fever (Minute Gram-Negative Anaerobic Diplococcus). D. Thomson.—p. 227.
Possible Hosts for the Bilharzias in Portuguese East Africa. F. G. Gawston.—p. 228.
Rectal Injections of Quinine. W. Fletcher.—p. 229.

New Micro-Organism Found in Measles and Scarlet Fever.—In inoculated tubes containing testicular mince, among a variety of organisms usually found by Thomson in catarrhal affections of the nasopharynx, there were also present minute gram-negative diplococci which tended to be grouped in masses. This organism resembled *Micrococcus catarrhalis*, except that it is much smaller in size. This germ was only isolated in pure culture with great difficulty after many attempts. The germ was isolated pure, first from a measles culture, and later from a scarlet fever culture. It is a strict anaerobe. It requires for its growth a medium containing plasma, whole blood, hydrocele fluid, or testicular extract. The germ is a remarkable gas producer. It is a true diplococcus, growing in pairs like the gonococcus, but it is extraordinarily minute, measuring only about one third of the diameter of the gonococcus, or about 0.3 micron. In liquid mediums it tends to grow in masses and never in chains. It is markedly gram-negative. This minute diplococcus is usually seen in fair abundance in gram-stained smears of the mucopus from the throats of measles and scarlet fever patients, whereas it is not at all evident in similar preparations from the throats of normal adults.

Medical Journal of Australia, Sydney

1: 687-714 (June 23) 1923

Progress Report on Health Program of Halifax and Dartmouth. B. F. Royer.—p. 687.
"Pink Disease" Erythredema. E. S. Littlejohn.—p. 689.
Injections of Saline Solution in Gastro-Enteritis. M. Harper.—p. 693.
Hay-Fever and Asthma. L. A. I. Maxwell.—p. 693.
Tuberculosis of Suprarenals in Tuberculous Peritonitis. W. Ray.—p. 698.
Typhoid Fever with Supposed Perforation. W. Ray.—p. 699.
Case of Familial Hemolytic Splenomegaly Treated by Roentgen Rays. E. S. Littlejohn.—p. 699.
Intussusception with Meckel's Diverticulum. W. Vickers.—p. 699.

Public Health Journal, Toronto

14: 291-338 (July) 1923

Child Hygiene, Department of Public Health, Toronto. A. G. Fleming.—p. 291.
Some Recent Aspects of Public Health Administration. H. F. Vaughan.—p. 302.
Smallpox. W. L. Hutton.—p. 308.
Recreation for Women and Girls. A. F. Hodgkins.—p. 314.

South African Medical Record, Cape Town

21: 265-292 (June 23) 1923

Sunlight and Disease. P. M. Daneel.—p. 265.
Evolution of Dentistry. S. H. Coplans.—p. 272.
Treatment of Fractures of Lower Extremity. I. W. Brebner.—p. 278.
Treatment of Fractures of Upper Extremity. R. Daly.—p. 281.

Tubercle, London

4: 433-480 (July) 1923

*Occurrence of Tubercle Bacilli in Blood Stream in Tuberculous Children. C. D. S. Agassiz and S. R. Gloyne.—p. 433.
Diagnosis and Treatment of Tuberculosis of Kidneys and Urinary Tract. III. Treatment of Renal Tuberculosis. G. Ekehorn.—p. 444.
Disappearance of Tuberculous Peritonitis Eight Days After Use of 11 Cgm. of Radium. P. Bull.—p. 450.

Tubercle Bacilli in Blood of Tuberculous Children.—Forty-three cases of tuberculosis in children under 15 years of age have been examined by Agassiz and Gloyne. The cases varied from those with slight involvement of the glands to those in which the infection was widespread in the lungs, and in which the tubercle bacilli were present in the sputum. In no case were tubercle bacilli shown to be present in quantities of blood varying from 1.5 to 10 c.c. Blood was taken both during apyrexial and pyrexial periods. The presence, therefore, of slight or extreme toxemia would not appear to show that the blood stream was necessarily infected. The evidence collected would suggest the following possibilities: (*a*) the number of bacilli circulating in the blood is too small to be detected by the withdrawal of amounts of blood up to 10 c.c.; (*b*) that the bacilli are only discharged into the blood stream at intervals (i. e., it is an embolic rather than an elimination process, as in renal infection); (*c*) that extension of disease takes place by means of some other route, such as the lymphatic system.

Bulletin de l'Académie de Médecine, Paris

89: 571-591 (May 29) 1923

*Mortality from Infectious Diseases in France. A. Calmette.—p. 572.
*Recruiting for the Antituberculosis Dispensaries. Bernard and de Retz. —p. 578.
*Sugar Diet in Uricemia. Rémond and Rouzaud.—p. 585.
*Changes Due to Artificial Pneumothorax. Parisot and Hermann.—p. 586.

Mortality from Infectious Diseases in France Before and After Pasteur.—Calmette demonstrates that France, in spite of the low natality, would have a yearly increase of 179,400 souls, if the mortality were as low as it is in Norway (132 per 10,000 instead of 178 in France in 1910).

Recruiting for Antituberculosis Dispensaries.—Bernard and Retz found that visiting nurses are the most important factor in recruiting patients for dispensaries.

Sugar and Uric Acid in Blood Plasm: Sugar Diet in Uricemia.—Rémond and Rouzaud observed a certain antagonism between the sugar and uric acid concentration of the blood. The elimination of uric acid was greater when the blood sugar was high. Ingestion of sugar was followed by a decrease of uric acid in the blood.

Clinical and Therapeutic Consequences of Changes in Pulmonary Function and General Nutrition Due to Artificial Pneumothorax.—Parisot and Hermann found very slight increase in frequency of respiration and a marked increase in oxygen intake in patients with artificial pneumothorax. Slow institution of the pneumothorax is less disturbing than a rapid one. Experiments on animals confirmed these observations. They found that adult animals lose weight and young animals are retarded in their growth in spite of an increased appetite. The carbohydrate tolerance is increased.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 937-1008 (June 22) 1923

*Evening Antisyphilis Dispensaries. M. Pinard and Rabut.—p. 939.
*Child Welfare Work in Morocco. J. Comby.—p. 941.
*Filling Pleura with Oil. A. Bernou.—p. 944.
*Tests for Gastric Cancer. F. Ramond, Ravina and Zizine.—p. 947.
*Insulin in Treatment of Diabetes. Chabanier et al.—p. 949 and p. 977.
*Anuria from Abortifacient. F. Rathery and R. Michel.—p. 962.
*Osteomalacia in Man. E. Chabrol and Haguenau.—p. 973.
Fatal Septicemia from Friedländer Bacillus. Brouardel et al.—p. 990.
*Arsphenamin Sensitization. Raynaud, Montpellier and Lacroix.—p. 992.
*Multiple Sclerosis and Syphilis. H. Dufour and Duchon.—p. 999.
Associated Leprosy and Acquired Syphilis. L. Babonneix and E. Rivalier.—p. 1004.

Venereal Disease Dispensaries.—Pinard and Rabut urge the value of comparing the work of these dispensaries from year to year. At the Boucicaut, in their charge, they found forty-eight new cases of syphilis in 1922 but only nine in 1923 to date.

Heliotherapy in Morocco.—Comby describes the "sun garden" which supplements other welfare measures for children which the French have organized in Morocco. "Many a European town might well envy the provisions at Rabat."

Blocking the Pleura with Oil.—Bernou states that a tuberculous young woman was materially improved by artificial pneumothorax until a perforation into the pleura and suppuration threatened to annul the effects. He then injected into the pleura a medicated oil, which prevented adhesion of the layers, and has repeated this at intervals during the fourteen months since. Resorption of the oil might be prevented by using liquid petrolatum instead of the olive oil he used, sometimes with 4 per cent. camphor. It took 225 c.c. of oil to replace the pneumothorax, but the result realized his hopes.

Cytolytic Test for Cancer.—Ramond, Ravina and Zizine found that a suspension of human or dog gastric mucosa is rapidly destroyed by the blood serum of patients with gastric cancer, and, to a lesser extent, with cancer lower in the alimentary tract. If the suspension is centrifugated, the tubes to which the cancer serum is added clear up completely on twenty-four hours' incubation, while the controls grow more turbid. These two tests not only aid in the early diagnosis but also in the prognosis, as a strong cytolytic reaction indicates that the organism is defending itself well. The course was more torpid in such cases.

Insulin in Treatment of Diabetes.—Several members described their experiences with insulin. Lereboullet mentioned that in one girl, aged 13, the benefit from the insulin seemed to be durable. On three occasions there was too long an interval before the intake of food after the insulin, and the child developed vertigo or convulsions.

Total Anuria from Abortifacient.—The woman took daily for two weeks small doses of subacetate of lead—a total of 5 or 6 c.c.—to bring on the menses. Subacute nephritis developed, with fatal anuria. Comparison with similar cases on record suggests an extra liability to injury from repeated small doses.

Osteomalacia in Man.—The necropsy findings are discussed in a case of osteomalacia of twenty-five years' standing, after death from intercurrent pneumonia.

Anaphylaxis After Arsphenamin Treatment.—An eruption resembling that of scarlet fever developed in the young man after the thirtieth daily injection of arsphenamin. Then, even 1 mg. induced intense anaphylactic shock and eruption. Sodium bicarbonate retarded and attenuated the shock somewhat, but never prevented it.

Multiple Sclerosis and Syphilis.—The Wassermann reaction was positive in the cerebrospinal fluid in the case described, and improvement followed bismuth treatment, but there was neither a history nor signs of syphilis.

Médecine, Paris

4: 565-648 (May) 1923

*The Present Conception of Pulmonary Tuberculosis. Bezançon.—p. 565.
Present Status of Tuberculosis Question in Germany. S. I. de Jong. —p. 586.
Idem in the United States. M. Chevalley.—p. 594.
*Tubercle Bacilli in the Stools. E. Sergent and H. Durand.—p. 603.
*Tubercle Bacilli in Self-Digested Sputum. A. Philibert.—p. 610.
*Hepatic Anergy in Tuberculosis. N. Fiessinger.—p. 615.
Hilus Roentgen Findings in Incipient Tuberculosis. P. Duhem and R. Chaperon.—p. 617.
Radiography of Tuberculous Lung Postmortem. P. Braun and C. Verin.—p. 622.
*Skin Tuberculin Reaction in Women. E. Coulaud.—p. 627.
*Conjugal Tuberculosis. P. Roussel.—p. 630.
Treatment of Hemoptysis in Tuberculosis. M. P. Weil.—p. 636.
*Treatment of Vomiting in the Tuberculous. P. Lassablière.—p. 641.
Treatment of Diarrhea in the Tuberculous. A. Jacquelin.—p. 645.

The Present Conception of Pulmonary Tuberculosis.—Bezançon's long study emphasizes the importance of the genital sphere in the progress of tuberculosis. Not only puberty and pregnancy, but the recurring menstrual waves influence tuberculosis injuriously. The exaggeration of thyroid function and of the basal metabolism usual at these times may be responsible; even a mild intercurrent infection is another potent factor. He says that radiography often reveals more than really exists, and that it is too early yet to rely on the complement fixation test.

Tubercle Bacilli in the Stools.—Sergent and Durand urge the importance of examining the stools in cases of pulmonary tuberculosis when sputum is not available. Children swallow their sputum, and many adults do so likewise. In the stools of thirteen nontuberculous patients, they found no acid-fast bacilli, while they were constantly present in 8 sputum-swallowing tuberculous patients. They make an emulsion of 50 c.c. of feces in 0.07 per cent. sodium chlorid solution, filter through gauze, and pour to the two-thirds mark in two centrifuge tubes. To each tube is then added 2 c.c. of a mixture of equal parts of ether and ligroin, and after thorough agitating, the tubes are centrifuged for ten minutes. The experiences related show that the dejecta of the tuberculous are as virulent as the sputum.

Incubation of Sputum.—Philibert announces that sputum in a centrifuge tube placed in the autoclave for four days at 37 C (or at room temperature for ten days) undergoes self-digestion, and the tubercle bacilli settle to the bottom. In 227 cases in which ordinary homogenization measures failed to reveal bacilli, this incubation method showed them in 8.8 per cent. In nine cases, guinea-pigs had been inoculated with the sputum at the same time, and the six with negative autolysis were negative in the animals, while the three positive were positive also in the animals.

The Liver in Tuberculosis.—Fiessinger's title is "The Hepatic Anergy," and he pleads the necessity for sparing the liver in the tuberculous in every way.

Skin Tuberculin Reaction in Women.—Coulaud noted that the negative responses in undoubtedly tuberculous women coincided with the menses in fully 90 per cent. The slightest delay in the menstrual period seems to determine a conditional anergy to tuberculin.

Conjugal Tuberculosis.—Roussel found the husband alone tuberculous in 423 families; the wife alone in 163, and both husband and wife in forty-nine, but the infection had preceded marriage in twenty-seven in this last group. Consequently, conjugal contagion could be incriminated in only 5.2 per cent. of the total 423 families, and the infection was mild.

Vomiting in Tuberculosis.—Lassablière has found restriction to sweetened condensed milk useful in controlling vomiting in the tuberculous. Sodium citrate with codein has also aided. He has often found this sweetened condensed milk effective in treatment for diarrhea in children.

Paris Médical

13: 509-524 (June 9) 1923

*Blood Pressure as Factor in Diuresis. L. A. Amblard.—p. 509.
Technic for Blood Transfusion. G. Rosenthal.—p. 513.
*Febrile Syphilis. A. Lanzenberg.—p. 518.
Strontium in Treatment of Retention of Sodium Chlorid. Dong-Ngoc-Dieu and P. L. E. Millous.—p. 522.
Jaundice from Congenital Atresia of Bile Duct. G. L. Hallez.—p. 523.

Blood Pressure as Factor in Water Diuresis.—Amblard here reviews his special studies of the action of courses of mineral waters (Vittel) in chronic heart and kidney disease. There seems to be no evidence to date which suggests that the key to the secretion of water lies either in the renal circulation or in the hydremia.

Febrile Syphilis.—In one of Lanzenberg's two cases, the continuous fever and pains in the joints were ascribed to typhoid for over two months, when a suspicious lesion in the pharynx cleared up the diagnosis. Recovery was prompt under arsenical treatment; the local symptoms had been aggravated by the mercurial treatment tried at first. In the second case, the diagnosis had long been occult tuberculosis, but the recurring evening fever subsided at once under specific treatment. Before cases of a chronic subfebrile state with slight anemia and slight stationary signs of a mild lesion in the lung, the whole persisting unmodified for years, are labeled tuberculosis, a tentative course of specific treatment should be given.

Presse Médicale, Paris

31: 241-252 (March 14) 1923

*Specific Treatment of Tuberculosis. A. Jousset.—p. 241.
*Pathogenesis of Hemogenia. P. Emile-Weil and Isch-Wall.—p. 243.
Tubercle Bacilli in Blood of Young Children. H. Lemaire and R. Turquety.—p. 245.

Vaccine Therapy and Serotherapy of Tuberculosis.—Jousset explains that vaccine therapy is indicated in cases of local affections, while serotherapy is indicated with general infection and with regular fever. When the fever is of the toxic type, with a wide range, vaccine therapy is preferable to serotherapy. When the morning minimum is above 37 C. and the fluctuations do not exceed 2.5 degrees C., then serotherapy, and only serotherapy, should be tried. When the morning minimum is below 37 C. and the range not over 2.5 degrees, vaccine therapy is preferable. Either treatment can be used when the temperature keeps close to normal, but with hectic fever, with a wide range, both vaccine and serum are futile. Alternation of the vaccine and antiserum may render valuable service—a kind of Scottish douche specific treatment, stimulating and soothing in turn.

Pseudohemophilia: Hemogenia.—Weil and Isch-Wall explain hemogenia as an acquired or inherited hemorrhagic blood and vessel diathesis, caused by functional disturbances in the whole blood-producing apparatus, but most pronounced in the liver. Contrary to hemophilia, it affects women almost exclusively, and the hemorrhagic tendency may be restricted to the genital apparatus. A previous study of hemogenia by these authors was reviewed in these columns May 26, 1923, p. 1546.

31: 593-604 (July 7) 1923

Indications and Technic for Tonsillectomy. A. Moulonguet.—p. 593.
*Recurring Parotitis. G. Leclerc.—p. 595.
The New Anesthetics, Acetylene and Ethylene. L. Cheinisse.—p. 596.

Recurring Parotitis.—Leclerc relates that a man, now 40, had had since childhood recurring retention of saliva in one parotid gland. The gland enlarged, but voided its contents on pressure. This recurred ten or twenty times an hour, and the sialorrhea was extreme. Finally the gland suppurated. Nothing could be found to explain the recurring retention, and Leclerc applied Leriche's exeresis method in treatment, tearing out the auriculotemporal nerve. The ptyalism was arrested at once and permanently. In Leriche's similar case the affection was bilateral, and required the operation on each side. He has thus treated fistulas of the parotid, and the sialorrhea in aerophagy and with cancer of the esophagus, and always found it successful.

Revue de Chirurgie, Paris

61: 249-328, 1923

Cancer in Submaxillary Gland. E. Delannoy.—p. 249.
Contusions of the Pancreas and False Traumatic Cysts. P. Mocquot and H. Costantin.—p. 279. Cont'n.
Unilateral Intrathoracic Surgery in Open Pleura. Immediate Results. J. Leveuf.—p. 319.

Schweizerische medizinische Wochenschrift, Basel

53: 593-612 (June 21) 1923

*Premature Separation of Normally Located Placenta. E. Frey and A. Armbruster.—p. 593.
The General Anesthesia Question. E. Baumann.—p. 600.
*Operative Treatment of Adhesive Pericarditis. R. Dunant and G. Turrettini.—p. 606.
Air Pump in Otology. E. Lüscher.—p. 607.

Premature Separation of Normally Attached Placenta.—Frey and Armbruster remark that this mishap seems to be occurring with unusual frequency of late in their experience, a total of 0.85 per cent. of the 3,523 deliveries at the Zurich maternity in the last two years. In contrast to this total of thirty-two cases they encountered only eleven of placenta praevia. When the hemorrhage is predominantly internal, the uterus grows larger, round, hard, and tender, while the collapse is extreme. They had two cases of this type; in one, the blood poured into the peritoneum through the tubes. The separation occurred in the midst of a severe pregnancy toxicosis, the thirty-second week. The woman recovered after cesarean section. In fourteen cases, the soft parts not dilated, the fetus was extracted through an incision in the cervix, under local anesthesia, with excellent results. There is no need to remove the uterus, as a rule.

Operative Treatment of Adhesive Pericarditis.—Dunant and Turrettini resected the third, fourth and fifth ribs over an expanse of 10 cm., to relieve the heart, in a rebellious case of adhesive pericarditis of several years' standing. The patient was a woman, aged 24, and there was no appreciable valvular defect. The cardiolysis relieved the dyspnea at once, but the liver was still somewhat enlarged a year later. There has been no return of the dyspnea or edema, and menstruation is now regular. Insidiously progressive asystoly of the right heart, the anchored apex, and the systolic retraction of the interspaces were all unmistakable in this case, and the cardiolysis restored the circulation to an excellent functional condition.

Pediatria, Naples

31: 745-800 (July 15) 1923

*Etiology of Scarlet Fever. G. Caronia and M. B. Sindoni.—p. 745.
*Camphor in Treatment of Enuresis. F. de Angelis.—p. 761.
*Treatment of Sarcoma of Kidney. S. Grisanti.—p. 766.
Infant Mortality in Farming District. H. Alessio.—p. 772.
Present Status of Immunization Against Measles. S. de Stefano.—p. 781.

The Causative Agent of Scarlet Fever.—Caronia and Sindoni's communication was reviewed editorially, August 18, p. 584. They give five colored plates showing Di Cristina's anaerobic diplococcus as it appears on the Tarozzi-Noguchi or Di Cristina culture mediums. The latter is a broth-ascites and human red corpuscles medium. They say that they were encouraged to inoculate healthy children with their cultures by their recent research on experimental varicella. They found that an attenuated form of varicella resulted, conditions similar to those of cowpox in relation to smallpox. They consequently inoculated four healthy children and five convalescing from measles with the cultures obtained from scar-

let fever patients. These children have been kept long in contact with scarlet fever cases, or sprayed with the throat secretions, without contracting the disease. These experiences justify their methods, they think, and establish the identity of the small diplococcus isolated by Di Cristina in 1921.

Camphor in Treatment of Enuresis.—De Angelis reports improvement or cure in six of eleven children given injections of 0.2 gm. of camphor for from one to six evenings.

Sarcoma in Child Kidney.—Grisanti found adhesions too dense to allow removal of the kidney of the girl, aged 11. The organ was brought to the surface and given thorough roentgen treatment at two sittings, through the laparotomy incision, and a third sitting after it had healed. By the end of the second month no trace of the tumor could be palpated.

Policlinico, Rome

30: 681-718 (May 28) 1923

*Test for Bile Pigments in Urine. G. Sabatini.—p. 681.
*Epilepsy with Myoclonus. P. Magaudda.—p. 686.
*Edema After Arsphenamin Treatment. G. Bertaccini.—p. 690.
Present Status of Cancer. G. Romano.—p. 692.
The Jenner Centennial. A. Filippini.—p. 696.

Test for Bile Pigments in Urine.—Sabatini asserts that the test he describes for urine and blood proved absolutely reliable in his extensive research with normal urine, urine in jaundice, and with solutions of bile pigments. The bilirubin is transformed into biliverdin, the depth of the green tint proportional to the quantity present. The reagent is made by mixing well at the moment of use 30 c.c. of a solution of 12 c.c. of hydrochloric acid in distilled water enough to make 100 c.c., and 1 c.c. of a 1 per cent. solution of sodium nitrite. He describes how to prepare a durable standard solution for comparison by extracting the biliverdin with amyl alcohol.

Epilepsy with Paramyoclonus Multiplex.—Magaudda reports that two brothers, aged 15 and 17, witnessed an attack by armed bandits, and after this fright both gradually developed a tendency to epileptic seizures, followed a year or two later by clonic paroxysmal contractions of the muscles. The myoclonus was of the Unverricht type, and the same muscles were involved each time. An endocrine factor is suggested by a tendency to goiter in one of the young men, now 19, and the scanty development of the sexual characters in the other.

Edema After Injection of Arsphenamin. — Bertaccini describes a series of five cases in one month in which edema of legs and arms, with some cyanosis, developed in less than an hour after the fifth or seventh injection of an Italian arsphenamin, all of the same series. He interprets the symptoms as a kind of localized nitritoid crises. No by-effects had been noted in seventeen other patients treated from the same series.

30: 721-758 (June 4) 1923

The Arneth Grouping with Suppuration. E. Periti.—p. 721.
Antiserums and Vaccines in Gonococcus Conjunctivitis. A. Rosica.—p. 723.
Serous Meningitis in Man of 37. L. Tiberio.—p. 727.
Improved Apparatus for Proctoclysis. G. Bottaro.—p. 728.
Technic for Artificial Pneumothorax. Corinaldesi.—p. 729. Idem. Curti.—p. 730.

30: 761-791 (June 11) 1923

*Auricular Flutter. A. Sebastiani.—p. 761.
Stovain Intraspinal Anesthesia. C. Licini.—p. 767.
Necessity for Concerted Action Against Tuberculosis. D. Pollara.—p. 770.
*History of Syphilis. D. Barduzzi.—p. 771.

Auricular Flutter.—Sebastiani describes the clinical picture of auricular flutter as observed in a typical case. Under digitalis, the flutter was transformed into fibrillation, and this subsided under quinidin. Clinically normal conditions were thus restored in the man, aged 43.

History of Syphilis.—Barduzzi urges research to settle the question of the historical origin of syphilis. The statements in the textbooks are conflicting.

Rivista Critica di Clinica Medica, Florence

24: 65-80 (Feb. 15) 1923

Changes in Leukocyte Count After Pasteur Treatment. G. Ciuti.—p. 65.
*Silver Nitrate Test in Urine. V. M. Buscaino.—p. 71.

24: 81-96 (Feb. 25) 1923

Systolic Blood Pressure in the Leg. B. Chimenti.—p. 81.
Silver Nitrate Test in Urine. F. D'Arbela.—p. 87.

The Silver Nitrate Urine Test in Psychoses. — Buscaino states that the black precipitate obtained with hot silver nitrate in the urine from persons with general paralysis or other psychoses, is soluble in the cold in sulphuric and nitric acids, but not in ammonia. With normal urine, the precipitate is extremely soluble in the cold.

Revista de la Asoc. Médica Argentina, Buenos Aires

36: 7-68 (Jan.-April) 1923

Vaccine Treatment of Diphtheria. A. Bachmann and J. M. de la Barrera.—p. 7.
Influence on Growth of Lesions in Infundibulum-Subthalamus Region. B. A. Houssay and E. Hug.—p. 11.
Anaerobic Flora in Gangrene at Buenos Aires. A. Sordelli.—p. 24.
Local Action of Snake Venom. B. A. Houssay.—p. 29.
Sacralization of Fifth Lumbar Vertebra. A. Buzzi.—p. 42.
Hydatid Cyst in Liver Opening into Gallbladder. C. I. Allende.—p. 53.
*Multiple Aneurysms in Superficial Veins. P. Jauregui.—p. 64.

Multiple Aneurysms. — The numerous small tumors on hands, arms and chest are circumscribed fusiform aneurysms in the superficial veins, evidently congenital. They contain organized thrombi and cause no disturbance.

Semana Médica, Buenos Aires

1: 937-988 (May 17) 1923

*Valve Tracheotomy. G. Zorraquín.—p. 937.
*Strongyloides Stercoralis in Argentina. Parodi and Tobias.—p. 942.
Arsenicals and the Liver Balance in the Pregnant. M. L. Pérez.—p. 946.
Torsion of the Omentum. J. M. Mesa.—p. 949.
*Fatty Degeneration of the Kidney. M. E. Varela.—p. 951.
Pharmacodynamic Action of Certain Opium Alkaloids. M. Soto.—p. 956.
Biochemical Action of Diseases on the Will Power. D. Zanalda.—p. 964.
Morphin as Reagent for Nitrites. L. Rossi.—p. 967.
Behavior of Nitrites in Presence of Nitrates. L. Rossi.—p. 967.
Constitutional Debility and Normal Standards. I. P. Costa.—p. 969.

30: 1069-1108 (June 7) 1923

Symphysiotomy in General Practice. J. B. González.—p. 1069.
Arsenical Treatment of Children. J. C. Navarro and E. A. Beretervide.—p. 1078.
Diagnostic Test for Hydatid Cyst. J. Bacigalupo.—p. 1083.
Calculus in Right Tonsil. R. Becco.—p. 1084.
The Diet for Schoolchildren. T. A. Tonina.—p. 1085.
"Gland Fever": Infectious Mononucleosis. O. P. Curti.—p. 1095.
Arsenicals in Treatment of Leprosy. O. Calcagno.—p. 1096.
Choleperitoneum: Accumulation of Bile in Peritoneum from Rupture of Hydatid Cyst in Liver. M. Rosso.—p. 1098.

Treatment of Acute Laryngeal Suffocation. — Zorraquín pleads for the necessity of maintaining expiration by the natural route during intubation. His valve tracheal cannula insures this as he explains with three illustrations. It was mentioned in these columns, June 9, 1923, p. 1738, when published elsewhere.

Strongyloides Stercoralis in Argentina.—Parodi and Tobias report the first case of anguilluliasis known in Buenos Aires. The man, aged 33, had always lived there. The cases of hookworm in Buenos Aires are always imported from the subtropical zone of the country.

Fatty Degeneration of the Kidney.—Varela's patient, aged 17, developed edema and albuminuria during arsenical treatment under which rebellious leg ulcers had healed, although there was nothing otherwise to suggest syphilis. The kidney symptoms increased under rest, restriction to milk, heart tonics and diuretics, and the polarizing microscope confirmed the suspicion of lipoidic nephrosis. Treatment was changed to diuretics of extrarenal action, a predominantly protein diet, reducing the intake of fluids rather than of salt, and heart tonics, and in twenty-three days conditions had returned nearly to normal, 11 kg. of weight having been lost. Complete clinical recovery soon followed. The edema in such cases is due to increased absorbability of tissues rather than to retention of chlorids, and treatment should attack this exaggerated absorptiveness. For this Varela used potassium acetate, and obtained unquestionable benefit from it as favoring colloidal syneresis (contraction of the gel). It may be necessary to try sulphates, citrates, bicarbonates, acetates, or other salt until one is found with effectual action. The blood pressure is low in these cases as the heart is not hyper-

trophied, but the blood serum is opalescent. The blood showed both hydremia and high viscosity, but the Ambard constant was normal, in the case reported, and the output of urine after drinking 1,500 c.c. of water, proceeded almost normally.

Archiv für Kinderheilkunde, Stuttgart

73: 1-80 (June 12) 1923

*Influence of Light on Growth. A. Eckstein.—p. 1.
*Import of Striae Vasculares. F. Schleissner.—p. 29.
*Erysipelas in Infants. A. Schliepe.—p. 32.
*Enuresis in Relation to Sleep. W. Courtin.—p. 40.
*Physical Status of Children in Large Families. E. Schlesinger.—p. 50.

Influence of Light on Growth of Rats.—Eckstein experimented with both sunlight and artificial light on litters of white rats, passing the daylight through red, blue and grey gelatin filters, such as are used for color photography. Similar experiments with the animals living in the light from a mercury vapor lamp gave negative results likewise, as also a series of litters kept in the dark and brought out only for the irradiations. Nothing suggesting rachitis was noted, and it seemed evident that daylight or the absence of daylight had no influence on the growth of the animals. The mercury vapor lamp, on the other hand, promoted or checked the growth according to the experimental conditions and animals on a deficiency diet died sooner than the controls, after exposure to the mercury vapor lamp.

Enlarged Capillaries as Early Sign of Pulmonary Tuberculosis.—Schleissner refers to the striae vasculares in the skin over the apex, to which Francke ascribes diagnostic importance. These striae are common both in children and in the elderly. He thinks they are probably of mechanical origin, possibly from coughing. They are merely a sign that there has been a severe cough.

Erysipelas in Infants.—Schliepe reports that 70.6 per cent. died of the seventeen infants less than a year old with erysipelas at Greifswald in ten years. These cases formed 0.34 per cent. of the total 5,000 children treated at the clinic. There were severe complications in all but six cases. The manifestations of the disease did not differ materially from those in adults.

Relations Between Enuresis and Sleep.—Courtin's tests on fifty-six children, including thirteen boys and two girls with enuresis nocturna, failed to show any connection between especially deep slumber and the incontinence of urine. In treatment, the aim should be to strengthen the child's will to overcome the tendency to enuresis. As an aid to suggestion, a sham operation (no hypnosis) has often proved successful for months or cured the child permanently in the experience of the Freiburg children's clinic.

The Children in Large Families.—Schlesinger relates that the families in Germany with four or more children have organized to protect their interests. There are now 300 local organizations of the kind, with central headquarters at Frankfurt, and an organ, *Der Kinderreiche*. The child mortality in these large families increases from 15 per cent. with four children to 32 per cent. with seven, and over 50 per cent. with ten or more. The physical development is substandard, especially from the third to the sixth year, and in the later children. After leaving school, 18 per cent. were incapable of self support, but this generally righted itself later. The overcrowding in the home is most injurious to the younger children.

Deutsche Zeitschrift für Chirurgie, Leipzig

179: 145-287 (May) 1923

*The "Long Curve Flap." A. Kreiker and J. Orsós.—p. 145.
Experimental Ligation of Bronchus. R. Nissen.—p. 160.
Stereoscopy of Urinary Calculi and Foreign Bodies in Kidney Pelvis, Ureter and Vicinity. L. Drüner.—p. 177.
*Esophageal Spasm. W. F. Suermondt.—p. 183.
*Operations for Gastric and Duodenal Ulcer. M. Friedemann.—p. 190.
Spastic Ileus with Bilateral Incarcerated Femoral Hernia. A. Kessler.—p. 207.
*Serodiagnosis of Cancer. V. E. Mertens.—p. 216.
The Late Rickets Question. H. Maass.—p. 226.
Primary Sarcoma in Both Kidneys. P. Seulberger.—p. 249.
Diaphragmatic Hernia as Consequence of Malformation of the Esophagus. W. Tonndorf.—p. 259.
Isolated Fracture of the Lesser Trochanter. Carl.—p. 266.
*Transplantation of Vessels. E. Birt.—p. 269.
Procain in Treatment of Cephalic Tetanus. F. Mandl.—p. 274.
Rupture of Tendon in Syringomyelia. O. Thomann,—p. 281.
Operations for War Wounds of Peripheral Nerves. Schaper.—p. 284.

The "Long Curve and Small Triangle Flap."—Kreiper and Orsós call attention to the many advantages of the ophthalmologists' Imre-Blaskovics method of cutting and shifting a flap to cover a defect. No other technic gives such a broad base to the pedicle. The longer the curved incision, C D E, the less the strain when the flap is drawn up to cover the defect A B C. The curved incision should be at least four or five times as long as the width of the defect A C. The triangle D E F, cut out at the end of the curved incision, must be beyond a perpendicular line from the farthest edge of the defect. The size of the triangle is one half or one

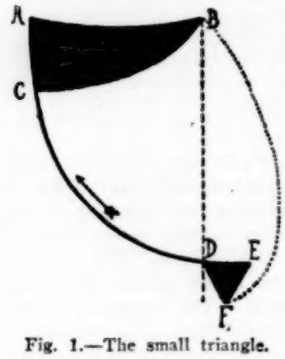

Fig. 1.—The small triangle.

Fig. 2.—After suturing.

third of the width of the defect A C, depending on the elasticity of the skin. The same principle can be applied from each side of the defect, each flap covering only half.

Esophageal Spasm.—The stenosis from spasm, 18 cm. from the teeth, had long masked a cancer 24 cm. below.

Mishaps After Operations for Gastric and Duodenal Ulcer.—Friedemann reports fifteen cases in which a second operation showed that peptic ulcers, recurring ulcers, and unhealing ulcers are comparatively frequent after gastro-enterostomy and transverse resection, as also obstruction of the passage from adhesions. Extensive resection of the antrum, removing the pylorus, seems to guarantee best against such mishaps. The first Billroth method is less liable to be followed by kinking.

Serodiagnosis of Cancer.—Intracutaneous injection of serum from two cancer patients that had been taking roentgen treatment induced a characteristic local reaction in nine other cancer patients, but not in the controls.

Transplantation of Vessels.—Birt states that as syphilis is so enormously prevalent in all classes in middle China, aneurysms are frequently encountered in his service in the Shanghai Hospital. He describes his success in resecting a large aneurysm in the popliteal artery and bridging the gap with a 20 cm. segment of the femoral vein from the other leg.

Klinische Wochenschrift, Berlin

2: 861-908 (May 7) 1923

*Artificial Feeding of Infants. G. Bessau.—p. 861.
Etiology of Respiratory Tetany. Behrendt and Freudenberg.—p. 866.
Cont'd.
Psychic Derangement with Transcortical Aphasia. S. Fischer.—p. 870.
Unusual Forms of Degeneration of the Gonococcus. A. Cohn.—p. 873.
*Headache After Intraspinal Anesthesia. Lundwall and Mahnert.—p. 874.
*Early Muscle Symptom in Lead Poisoning. L. Teleky.—p. 876.
*Herpes Zoster and Varicella. C. de Lange.—p. 879.
Renal Glycosuria in Early Pregnancy Diagnosis. M. Nothmann.—p. 880.
"Etiology of Epidemic Encephalitis." Luger and Lauda.—p. 880.
*Serodiagnosis of Syphilis in Rabbits. Sachs and Georgi.—p. 880.
*Physiology of the Action of Light. S. Rothman.—p. 881.
Research on Vaccine Immunity of Rabbit Cornea. Winkler.—p. 882.
Ovarian Pregnancy. J. Sfakianakis.—p. 882.
*Methods of Treating Lupus. Jesionek and Rothman.—p. 883.
Importance of Physical Chemistry in Bacteriology. E. Putter.—p. 883.

2: 1005-1052 (May 28) 1923

Metabolism in Fever. E. Grafe.—p. 1005.
Nervous Diseases from Removal of Endocrine Glands. A. Westphal.—p. 1009.
Pneumonia in Neuropathic Children. Bergmann and Kochmann.—p. 1011.

Serum Reactions in Bismuth Treatment of Syphilis. E. Nathan and H. Martin.—p. 1016.
Age of Gonococcus Vaccines. C. Bruck.—p. 1020.
Erysipeloid and Swine-Erysipelas. T. Diemer.—p. 1022.
Remote Effects of Local Reactions. R. Stahl.—p. 1024.
Pathogenesis of Pernicious Anemia. Seyderheim.—p. 1027. Reply. Moses and Warschauer.—p. 1028.
Capillary Reaction to Lowered Oxygen Pressure. David and Gabriel. —p. 1028.
Uranium Salt Diuresis. R. Heilig.—p. 1029.
Differential Diagnosis Between Aneurysm, Tuberculosis and Tumor of the Lungs. K. Lydtin.—p. 1029.
Treatment of Arteriosclerotic Kidney Disease. Guggenheimer.—p. 1030. Conc'n.
Importance of Calcium in the Blood. E. Billigheimer.—p. 1033. Cont'd.

Artificial Food for the Regular Feeding of Infants.—Bessau remarks that we have excellent formulas for feeding sick infants, to tide them past some acute crisis, but the question of a food for regular use is still unsettled. He says that alimentary diarrhea is due to fermentation in the stomach and small intestine, the latter reacting to fatty acids with pathologic peristalsis, while fermentation in the large intestine—which is common in breast-fed infants—causes no such motor disturbance. This motor disturbance invites invasion of the small intestine by bacteria from below. His bacteriologic examination of stomach and duodenal contents in healthy children on sterilized foods always showed extremely few bacteria, but infants with diarrhea always showed an abundant flora, especially of colon bacilli. The difference in time required for digestion of human and cow's milk is due to the difference in albumin content, and this, he says, he has overcome by peptic predigestion of the cow's milk. He gives no details of his formula, but declares that trypsin is absolutely ineffectual for this predigestion. He has found diarrhea rare in infants fed on predigested milk of a chemical composition similar to human milk. In conclusion he adds that active fermentation in the large intestine is antagonistic to bacterial processes in the small intestine. This fermentation—which also prevents chronic constipation and malnutrition from fats—is obtainable by reducing the albumin content of cow's milk and increasing the content of slowly absorbed carbohydrate, the most suitable of which is milk sugar.

Treatment of Headache After Lumbar Anesthesia.—Lundwall and Mahnert injected 40 c.c. of a 40 per cent. solution of hexamethylenamin into the ulnar vein in twelve patients with severe headache after intraspinal anesthesia, with promptly beneficial results. The hypertonic solution seemed to answer the desired purpose of regulating the intracranial circulation. In one case the severe headache had persisted for eight days after a diagnostic lumbar puncture, rebellious to all internal measures, but it promptly subsided after the injection of the hypertonic solution. Addition of 0.1 c.c. of calcium lactate in two other cases annulled the effect of the hexamethylenamin, but injection of the latter alone, the next day, had the desired effect.

Extensor Weakness as Early Sign of Lead Poisoning.—Teleky tests the strength of the extensor muscles in the wrist and hand by the extent of hyperextension possible, the arm flexed at the elbow, the palm down. When hyperextension of more than 45 degrees above the horizontal is impossible, this is presumptive evidence of injury from absorption of lead, other obvious causes excluded. In a group of 711 unselected workers in trades using lead, this weakness of the extensor muscles was manifest in 17.4 per cent. of the total, and in 41 per cent. of the 139 who showed signs of injury from lead, and in 52 per cent. of the men presenting actual lead poisoning. It could be found only in 1.85 per cent. of 271 men engaged in other trades not requiring contact with lead. The right hand is affected first and most. Teleky regards this extensor weakness as a valuable sign warning of impending danger. If the hand cannot be extended more than 20 degrees above the horizontal wrist, a young person should give up working with lead, at least temporarily. This extensor weakness seems to occur earlier and persists longer than any other sign of lead poisoning.

Biologic Tests Show Identity of Herpes Zoster and Varicella.—De Lange removed the crusts from varicella in three children, macerated the crusts in physiologic salt solution, and ground them in a mortar. With this antigen, and blood from three children with varicella, two with herpes zoster, and two controls, specific complement fixation reactions were obtained. This indicates, she asserts, the identity of certain cases of herpes zoster, at least, with varicella infection.

Serodiagnosis of Syphilis in Rabbits.—Sachs and Georgi precipitated the globulin of rabbit serum with hydrochloric acid, and found that this annulled the reaction in serologic tests for syphilis in serum from normal rabbits. The reaction was always positive, though weak, in the serum from syphilitic rabbits.

Physiology of the Action of Light.—Rothman does not consider that the lower blood pressure after exposure to light is due to dilation of the peripheral vessels, as it may be present without hyperemia, and absent in active hyperemia. On continued exposure, the blood pressure rises, the rise commencing with the appearance of the first tint of brown on the skin. The sugar content of the blood undergoes a corresponding change, decreasing 15, 30 or even 50 per cent. In his fifty cases, the changes in the pressure and sugar content of the blood were parallel, indicating a connection between lowered tonus of the sympathetic system and loss of the precursors of epinephrin from the circulation. Pigmentation is connected with decrease of tyrosin in the serum. In hypotonia of the sympathetic, the tyrosin content is increased, especially when the action of the light is followed by active dermatitis, indicating a proteolysis of the tissues charged with the tyrosin and its passage into the circulation. Dermatitis caused by the action of strong light is analogous to suprarenal insufficiency.

Physical Methods of Treating Lupus.—Jesionek and Rothman, from observation of 200 patients, say it is impossible to destroy the diseased tissues by roentgenotherapy without seriously injuring surrounding healthy tissues, and they call attention to the frequency of carcinoma sequelae. For lupus, general light treatment, with proper diet and hygiene, is preferable to roentgenotherapy, but they have obtained the best results from sun-baths, which at the same time are air-baths, and affect the peripheral blood vessels. They avoid inducing dermatitis. During sun-baths of several hours' duration, the patients are repeatedly sprayed with water. On sunless days, ultraviolet light baths are substituted. Light intensity, individual tolerance and local sensitivity of parts of the body should be taken into consideration in dosage. In local treatment, they use doses sufficiently strong to cause inflammatory hyperemia and swelling of the diseased part, and cause a certain degree of exudation without blistering, counting on the reactive hyperemia and reactive serous exudation to effect resorption of the tuberculous granulations. They always include in the exposure a border of 0.5 to 1 cm. of healthy tissue around the focus being treated.

Monatsschrift für Geb. und Gynäkologie, Berlin

62: 241-358 (April) 1923

The Campaign Against Cancer. A. Martin.—p. 241.
"Birth Mechanism." H. Sellheim.—p. 247.
Reply. K. Warnekros.—p. 268.
*Mercury Lamp in Prophylaxis of Eclampsia. Hochenbichler.—p. 269.
Pregnancy Prophylaxis of Puerperal Mastitis. W. Offermann.—p. 281.
Intra-Uterine Separation of the Bones. H. Naujoks.—p. 285.
Influence of Forceps on Mortality of Infants. A. Santner.—p. 289.
Injection of Fluid into Placenta: Turgidization. H. Borell.—p. 295.
Teratoma on the Buttocks. K. Fink.—p. 307.
*Facts and Theories on Sperm Immunity. E. Vogt.—p. 317.
Obstetrics and Gynecology in Finnish Literature. E. Björkenheim. —p. 321.

Prophylaxis of Eclampsia.—Hochenbichler exposed the entire body to artificial heliotherapy, the lamp half a meter from the skin. The sittings were only five minutes for each region at first. The blood pressure and capillary circulation always showed the favorable influence of the quartz lamp rays in the 50 cases of "eclampsism," in 10 of eclampsia during labor, and in 2 after delivery. The higher the blood pressure to start with, the greater the effect on it, but well established eclampsia showed very little influence. The rapid drop in the blood pressure seems to indicate that the action is on the nervous system. He has noticed that brunettes are less susceptible to eclampsia, and it is less severe in them than in blonde types. Possibly the pigmentation in the pregnant is significant from this standpoint. His experience, he says, justifies prophylactic quartz lamp treatment to reduce the blood pressure as term approaches. Even during the eclamp-

tic convulsion, he has seen it bring the blood pressure down by an average of 30 mm. and the effect lasted for five hours. He regards a blood pressure of 125 mm. Riva-Rocci as the extreme physiologic limit.

Sperm Immunity.—Vogt applies this term to designate the sterility which follows in animals extragenital, parenteral inoculation with sperm. This suggests that sterility in women might sometimes be due to a similar immunizing process. The decline in the cases of eclampsia during the war suggested the possibility that eclampsia may be traceable to excessive amounts of sperm introduced into the body. The absorption of sperm may have a sensitizing or activating influence. Van der Dyck found that the blood serum of sterile women, in whom no cause for the sterility could be discovered, always belonged to the agglutinating group. Spermatozoa, according to Dittler's experimental research, behave in the same way; he ascribes it to "humoral sterilization." Steinach's operations testify in the same direction. The assumption of sperm immunity is only a hypothesis, but an influence from resorption of sperm has been established beyond question.

Münchener medizinische Wochenschrift, Munich

70: 693-724 (June 1) 1923

*Phrenicotomy in Treatment of Lung Disease. F. Sauerbruch.—p. 693.
Avidity Tests of Antiscorpion Serum. Kraus and Rocha Bot.ho.—p. 695.
Value of the Hemoclasis in Testing Liver Function. Framm.—p. 697.
*Leukopenia in Test Hemoclasis. Hoff and Waller.—p. 698.
*Properitoneal Infusion. F. J. Kaiser.—p. 701.
Effects on Diabetes of Sodium Sulphate. Arnoldi and Roubitschek.—p. 702.
*The Weichbrodt Serologic Test. E. Sahlgren.—p. 703.
*Spatz' Method for Diagnosing Progressive Paralysis. G. Stiefler.—p. 704.
*Nature of the Vibration Sense. D. Katz.—p. 706.
Tumors, Trauma and Inflammation of Spinal Cord. H. Curschmann.—p. 709.
Public Health Organization in Bavaria. G. Seiffert.—p. 711.

Treatment of Lung Disease by Artificially Paralyzing the Diaphragm.—Sauerbruch has severed or severed and torn out part of the phrenic nerve in sixty patients to block completely the innervation of the diaphragm. All were tuberculous, and seventeen were more or less improved but none was cured. While phrenicotomy alone will not cure advanced tuberculosis of the lungs, great improvements for one or two years have resulted. He recommends a combination of phrenicotomy and artificial pneumothorax because resorption and exudation power is lowered after the former, and the latter thus may escape the effusion complication. Exeresis of the phrenic nerve was applied in 145 cases without accident.

Study of the Leukocyte Blood Picture with Intracutaneous Injections and in Widal's Hemoclastic Crisis.—Hoff and Waller made 121 experiments on adults, children and infants, healthy and diseased, to test the relation between the hemoclastic crisis and the decrease of leukocytes, using casein and patient's own blood, for intracutaneous injections, according to Müller's technic. They did not find vagotonia necessary for the hemoclastic crisis, and consider the question of the leukopenia after intracutaneous injections and in Widal's hemoclastic crisis still unsettled.

Properitoneal Infusion.—Kaiser says that intraperitoneal infusion in treatment of the dehydration in severe nutrition disturbance in infants and cholera infantum has not reduced the death rate from these diseases, and it frequently causes severe shock, collapse and peritonitis. He has, with better results, introduced the liquids into the properitoneal space, using normal saline with epinephrin, or other isotonic fluid.

Weichbrodt's Mercuric Chlorid Reaction.—Sahlgren says the positive Weichbrodt reaction in the cerebrospinal fluid is not restricted to the pathologic albumin but is conditioned by the quantity and proportional mixture of euglobulin, pseudoglobulin and albumin. Mastic and mercuric chlorid solution behave alike to these proteins, although the first is a colloidal solution and the other is not. The Weichbrodt reaction is not specific for syphilis, as he has obtained a strong positive reaction in the incipient stage of tuberculous meningitis.

Spatz' Method of Rapid Diagnosis of General Paralysis.—Linz used Spatz' method in eight cases of general paralysis and obtained the characteristic results in all instances, among them a case of stationary paralysis with death from pneumonia. The black spots and stripes were macroscopically perceptible. He supports the hematogenous theory of the hemosiderin pigmentation of the cells of the adventitia, which Spatz says is found only in general paralysis and trypanosomiasis, due to a particular type of injury of the blood vessels.

The Nature of the Vibration Sense.—Katz refers to the fact that a deaf-mute can palpate the vibrations of the vocal cords of the speaking or singing voice, and secure an image of sound making. He says this is not due to coupling of auditory and tactile elements, but to the deep phenomenologic and structural relationship of the sense of hearing and of touch. He considers the sense of vibration is a special sense perception, and not a modification of pressure or touch perception; like the sense of hearing, it gives information on the vibratory state of bodies.

Wiener klinische Wochenschrift, Vienna

36: 339-354 (May 10) 1923

*Etiology of Tuberculosis in Old Persons. H. Schlesinger.—p. 339.
*Irritation of Labyrinth and Ataxia. Gatscher.—p. 340.
Obstetrical Experiences with Sachs-Georgi Reaction in Diagnosis of Latent Syphilis. B. v. Váró.—p. 342.
Roentgen Sensitiveness of Different Sorts of One Species of Plants. E. Petry.—p. 345.
Cerebral Paresis After Partial Self-Strangulation. K. Grosz.—p. 345.

Etiology of Tuberculosis in Old People.—Schlesinger emphasizes the fact that tuberculosis is rather more frequent in old persons, than in middle age. It is usually chronic. It is very doubtful whether this is due to a lowered virulence of the microbes. He discusses the different determining factors in the etiology of pulmonary tuberculosis in the elderly.

Influence of Irritation of Labyrinth on Cerebellar Dynamic Ataxia.—Gatscher stimulated the vestibular nerve by injecting cold water into the auditory canal. He found a distinct influence on the ataxia in multiple sclerosis and tabes.

Zentralblatt für Chirurgie, Leipzig

50: 857-888 (June 2) 1923

*Local Effect of Hypertonic Salt Solutions. W. von Gaza.—p. 858.
*Technic of Wide Gastro-Enterostomy. J. Philipowicz.—p. 861.
Wire Extension with Nonrust Steel Wire. F. Bange.—p. 863.
A Case of Pelvic Aneurysm. E. Neuber.—p. 865.
Gastro-Jejuno-Colon Fistula Due to a Silk Thread. J. Philipowicz.—p. 869.
Semmelweis and Lister. H. Weckerling.—p. 870.
*Appendicitis in the Chinese. P. Weischer.—p. 872.

Effect of Hypertonic Salt Solutions on Granulation Tissue.—Gaza recalls that hitherto it has been assumed that the effect of concentrated salt solutions on wound tissues was due to the hypertonia of the solution, and an exosmotic effect, or a lymph lavage, was spoken of. Gaza's researches on the subject, however, lead him to believe that the effect of highly concentrated solutions on wound tissues is not based solely or even principally on hypertonia or the osmotic action. Equally concentrated solutions of various salts are, in part, markedly antagonistic, the manifestations being just what one would expect judging from the biologic action of the salt series. The action of the salt is to be conceived, in the main, as the effect of the ions, or, more particularly, the cations. The sodium ion causes swelling and loosening of the granulation tissue; the calcium ion has the opposite effect. Of the various salt solutions tried, the most useful for wound tissues were potassium chlorid, sodium chlorid and especially calcium chlorid in 10 per cent. solution. Whereas the first two salts do not directly accelerate epithelial growth, such growth is very favorable influenced by calcium chlorid (the practical conclusions refer, with respect to calcium, to large wounds of long standing, especially wounds with hypertrophic granulations).

Technic for Wide Gastro-Enterostomy.—Philipowicz emphasizes that the success of gastro-enterostomy for gastric or duodenal ulcer depends exclusively on the width and hence the functioning of the anastomosis, assuming that a thorough internal dietetic after-treatment to combat the acid condition follows. His conclusions are based on the observation of 150

active ulcers. The average anastomosis has a width of from 4 to 6 cm., whereas Philipowicz recommends 10 cm., whereby many complications are avoided. The postoperative course with his method is excellent. Vomiting and heartburn do not occur. Sufficient bile enters the stomach to neutralize the acid. In every case the pains disappeared, no matter how intense they may have been or how long they may have lasted. Roentgenograms show that the chyme is being promptly passed through the anastomosis without the portion of the stomach near the pylorus becoming filled. This method is equal to a complete resection of an ulcer without the disadvantages. If the opening is made large, later contraction is not serious, as complete closure does not occur. Peptic ulcer is also found less frequently, owing to the adequate alkalization of the stomach contents.

Appendicitis in the Chinese.—Weischer refers to Perthes' statement that "the fact that in China the appendicitis problem is lacking awakens the suspicion that the nature of the diet plays a part in its causation." Weischer adds that, during his sojourn in China, from 1915 to 1923, they had more than 86,000 applicants at the policlinic. The patients were, for the most part, of the poorest classes. During this period Weischer observed only two cases of chronic appendicitis, and one of these occurred in a sister of an order in which the food served was exclusively European.

50: 953-984 (June 16) 1923

Superiority of Ether to Ethyl Chlorid for Short Anesthesia. A. Kronacher.—p. 954.
Improved Mask for Use in General Anesthesia. J. Clemens.—p. 958.
Case of Paralysis of Heart and Respiratory Organs in High Spinal Anesthesia; Patient Saved by Heart Massage. Philipowicz.—p. 961.
*Local Anesthesia for Operation on Anus. Philipowicz.—p. 962.
Hermaphroditism, with Clinical Picture of Disturbances from One Retained Testis. P. Schneider.—p. 963.
*Eczema Around Artificial Anus. Grueter.—p. 968.
A Closed Method of Ignipuncture in the Treatment of Tuberculous Joints. A. Abrashanow.—p. 969.
"Action Current of Granulating Wounds." O. Beck.—p. 970.

Simplified Local Anesthesia for Operation in Anal Fissure and Hemorrhoids.—Philipowicz recommends a method which he has used with perfect satisfaction for twenty years in more than 100 cases. As anesthetic he employs the Schleich cocain mixture. For stretching the sphincter, only 5 c.c. is required. The single puncture lies exactly in the posterior midline, two fingerbreadths from the anal margin. At this point, with a thin needle 6 cm. long, at first one drop is injected intradermally and then the balance is injected in part tangentially toward the sphincter and in it, and in part intracutaneously and subcutaneously toward the anal margin. Anesthesia is accomplished at once and is complete. For the cauterization of hemorrhoids, if the nodules are external or can be pressed out, he injects from 3 to 5 c.c. of the solution into each nodule in succession. Each nodule must be injected and cauterized before proceeding with the next. If the hemorrhoids are internal, the sphincter must be dilated, and the nodules are then injected and cauterized one by one as in the case of the external hemorrhoids.

Animal Charcoal in Treatment of Eczema of Abdominal Wall.—Grueter has found animal charcoal efficacious, when ointments had failed, in the treatment of eczema of the abdominal wall resulting from a fistula of the small intestine.

Zentralblatt für Gynäkologie, Leipzig

47: 817-864 (May 26) 1923

*Pregnancy in Relation to Pernicious Anemia. K. Heim.—p. 818.
*Remote Results of Resection of the Promontory. H. H. Schmid.—p. 824.
Neurofibroma as an Impediment to Birth Process. P. Sippel.—p. 840.
*Formation of Vagina by Schubert Method with Fatal Result. E. Schroeder.—p. 842.
*Sedimentation of Erythrocytes in Gynecology. S. v. Molnár.—p. 845.
Instrument for Application of Dry Powder to Vagina. A. Stern—p. 849.

Pregnancy in Relation to Pernicious Anemia.—Heim points out that pernicious anemia is rarely associated with pregnancy. He reports the case of a young woman in the seventh month of pregnancy. There was no history of blood disease in the family. Menstruation began at 17; lasted only one day, was accompanied by pain, and was often suppressed for months at a time. Arsenical treatment had often been employed for anemia. Conception, in all probability, occurred during a remission, so that the pregnancy was the sole precipitating factor in the lethal attack. A spontaneous premature birth occurred at the beginning of the seventh month. The living child showed no signs of the mother's affection. Blood transfusion at the onset of labor came too late. The good effect was transient. Although the difficulties of an early diagnosis of pregnancy associated with pernicious anemia are great, an attempt to bring about a remission of the affection by means of blood transfusion and induced abortion is to be recommended.

Remote Results of Resection of the Promontory.—Schmid admits that, all in all, the exalted expectations awakened by resection of the promontory, as treatment for a narrow pelvis, have not been realized. However, the procedure is not so worthless as one might suppose from recent articles. If hemorrhage is prevented and the operator is careful to avoid callus formation by removing more periosteum than bone, resection of the promontory will continue to be valuable in the future in selected cases to make possible a spontaneous birth later.

Formation of Vagina by the Schubert Method, with Fatal Result.—Schroeder reports one of the first fatal results from the formation of an artificial vagina by the Schubert method. On account of the difficult separation of the rectum and the suture of a laceration in the bladder, the operation lasted three hours, and the patient, aged 26, though strongly built, became exhausted. She died the fifth day. In spite of this fatality, Schroeder's general impression of the Schubert procedure is favorable. He thinks the operation can usually be performed in one and one-half hours. The construction of a vagina from the rectum, he holds, is preferable to the small intestine procedure. His patient succumbed to the injuries to the bladder and ureters. The only dangerous feature of the Schubert operation, aside from the danger from infection, which exists in every operation, is the mobilization of the rectum. According to Schubert, fifty-three vaginas have been constructed from the rectum with no fatalities, and fifty-three from the small intestine, with a mortality of 20.75 per cent.

Diagnostic Value in Gynecology of Speed of Sedimentation of Erythrocytes.—Molnár has found the sedimentation of the red corpuscles a very valuable diagnostic aid: (1) for the differential diagnosis between inflammatory and noninflammatory tumors of the adnexa; (2) to determine the time for operation in inflammatory affections and complicated changes of position of the uterus; (3) before curetting, if the adnexa findings are suspicious, and there are no other sources of evidence; (4) to aid in the differential diagnosis between extra-uterine pregnancy and tumor of the adnexa, along with other clinical symptoms, and (5) as a guide in the treatment of inflammatory gynecologic infections.

Casopis lekaruv ceskych, Prague

62: 277-304 (March 17) 1923

*Perimyelography. A. Jirasek.—p. 277.
Disturbances of Development of Epiphyses. F. Sladky.—p. 280.
Primary and Secondary Zonular Keratitis in Seeing Eyes. J. Janku.—p. 283. Conc'n p. 314.
Determination of Blood Sugar with H. C. Hagedorn's Method. V. Ulrich.—p. 291.

Perimyelography—Jirasek tested different contrast fluids on cadavers. A 25 per cent. solution of sodium bromid injected into the spinal canal gave promising results. He is not in favor of pneumomyelography. The method used for years at the clinic in cases of spinal tumors outside of the spinal cord is hemilaminectomy.

62: 305-332 (March 24) 1923

Malformations of Nose and Their Correction. A. Precechtel.—p. 305.
*Action of Heart Extracts on Isolated Frog Heart. J. Sumbal.—p. 308.
Fight Against Carcinoma. J. Markl.—p. 319.

Action on Isolated Frog Heart of Extracts from the Region of the Sino-Auricular Node and from the Muscle of the Left Ventricle.—Sumbal extracted the heart muscle of the left ventricle and the region of the sino-auricular node, and studied their action on animals and especially on the isolated frog heart. He found that though both fluids acted positively inotrope, the action of the sino-auricular node extract was much stronger. It may cause slowing of the action, and even stop the heart in diastole. Tachycardia, bigeminal

pulse and other disturbances were also observed. The action resembles the action of histamin.

62: 473-500 (May 5) 1923

Radiopuncture of Tumors. J. Markl.—p. 473.
Ascaris in a Roentgenogram. A. Sigmund.—p. 477.
Multiple Cylindromas of Scalp. B. Rejsek.—p. 478.
Phlorizin in Early Diagnosis of Pregnancy. M. Premrou.—p. 480.
*Treatment of Epilepsy with Injections of Milk. O. Janota.—p. 483.
Survey on Insulin. Kimla.—p. 485.

Treatment of Epilepsy with Injections of Milk.—Janota is skeptical in regard to the alleged favorable results of treatment of epilepsy with parenteral injections of milk.

Acta Medica Scandinavica, Stockholm

58: 1-240 (May) 1923. Fifth Supplement

*Arsenic in Blood and Cerebrospinal Fluid. Leonard Brahme.—p. 1.

Arsenic in Blood and Cerebrospinal Fluid.—Brahme gives fifteen pages of bibliography and a historical review of the physiologic presence of arsenic from the food in the blood and tissues. The details and findings in seventy-eight cases after administration of arsenic in some form are also given. After neo-arsphenamin treatment, no arsenic could be discovered in the cerebrospinal fluid in cases in which there was nothing to indicate an irritated condition of the meninges, but always when there was irritation. The amount never totaled more than a few thousandths of a milligram per 10 c.c. of the fluid. The arsenic appeared in the fluid, however, in five or ten minutes after the injection. The technic for the tests is described in full with illustrations.

Hospitalstidende, Copenhagen

66: 393-408 (May 30) 1923

Micromethod for Blood Plate Count. O. Thomsen.—p. 406.

66: 409-424 (June 6) 1923

Tuberculous Rheumatism of Joints. S. Magnusson.—p. 409.
*Filter for Concentration of Chemical Rays. Haxthausen.—p. 416.

Cobalt Filter for Increased Concentration of Chemical Rays in Finsen Treatment.—Haxthausen has discovered that cobalt chlorid, dissolved in absolute alcohol, absorbs the red and yellow rays, weakens the ultraviolet slightly, and allows the free passage of the green, blue and violet. In photographing the spectrum of a mercury vapor lamp through a 2 per cent. solution, in a 1 cm. wide quartz receptacle, all the spectrum lines obtainable through the empty receptacle were obtained. The cobalt filter, by weakening the heat rays without materially affecting the chemical rays, may enable quicker and deeper therapeutic effects.

66: 427-440 (June 13) 1923

*Thomsen's Micromethod of Blood Platelet Count. E. Als.—p. 425.

Thomsen's Micromethod of Counting Blood Platelets.—Als says, though new, the Thomsen method for counting platelets in the venous blood is practically the only method used in Denmark. By the recent modification so that blood from the capillaries can be used, venous puncture is avoided. The count of platelets, in experienced hands, gives an average error of from 8 to 10 per cent. which is sufficiently close for clinical use. The values obtained by the micromethod are comparable with those found by the Thomsen venous blood method.

Norsk Magazin for Lægevidenskaben, Christiania

84: 449-520 (May) 1923

*Reexamination of Sanatorium Patients with Renal Tuberculosis. C. R. Bull.—p. 449.
*Surgical Treatment of Hydrocephalus. S. Widerøe.—p. 466.
Sømme's System of Graphic Records. C. Hambro.—p. 471.
*Medicolegal Application of Blood Grouping. F. Jervell.—p. 478.
*Differentiation of Human and Animal Blood. Idem.—p. 488.
Recent Literature on Insulin Treatment of Diabetes. Geelmuyden.—p. 493.
Provision of Insulin for Scandinavian Countries. A. Krogh.—p. 498.

After-Examination of Patients with Tuberculosis of the Kidneys.—Bull describes in detail twenty-four cases of tuberculosis of kidneys and bladder, under observation for many years, among them two patients who became permanently free from subjective, one also from clinical, symptoms without treatment of any kind. The bladder tuberculosis was clinically unchanged in one, during the time she felt herself free from symptoms, which he attributes to decreased infection in the kidneys. He shows by collected statistics of 594 nephrectomies since 1907 that the mortality of this operation averages only 4.3 per cent. and that 60 per cent. of the survivors were in good health five years later; 25.5 per cent. showed bladder symptoms, while 14.5 per cent. had died from intercurrent diseases or tuberculosis of other organs, including the other kidney.

Anton-Schmieden Suboccipital Puncture.—Widerøe performed this operation, consisting of excision of a small circular piece of the atlanto-occipital membrane, which permits drainage into the tissues around, on two patients with hydrocephalus and two with meningitis. The two with meningitis died the eighth and twenty-first days.

Medicolegal Application of Human Blood Grouping.—Jervell tabulates the findings in blood grouping tests in 32 Norwegian families. They confirm in every respect the work of others in this line, justifying the conclusion that if a child belongs to group II, III or IV, and the mother is not in these groups, the father must be, or his paternity is questionable. If both father and child belong to one of the less common groups and the mother does not, paternity is probable, but not certain. In 5 of the families, the parents were in group I or III, and the children were in the same groups or group II (three generations in one family). In 3 families the father was in group I and the mother in group IV, the children all in group III. In 3 families the father was in group II and the mother in group III, the children all in group IV. New-born children were examined in 8 of the families. He reviews the literature on the subject.

Differentiation of Human and Animal Blood by Grouping Tests.—Jervell remarks that although the red corpuscles of one species are not agglutinated by the serum from other members of the species, as a rule, yet this test may give conflicting findings on account of the iso-agglutination in human blood. This is especially liable to occur if the spot of blood being examined is comparatively fresh; with age, the iso-agglutinins lose their agglutinating power. In attempts to differentiate between human and animal blood, he says that error from this source might be avoided by using only human blood belonging to group I. He reviews the findings in tests with human blood and spots of blood from rabbits, guinea-pigs, mice, cats, dogs, horses, oxen, swine and sheep, dried on filter paper and kept from one to several weeks at room temperature. Human blood of groups II and III was sometimes agglutinated by guinea-pig and rabbit serum, but this never occurred with group I. Even at the best, this method cannot compare for accuracy with Uhlenhuth's precipitin reaction, but it may be useful occasionally as a control.

Ugeskrift for Læger, Copenhagen

85: 453-466 (June 28) 1923

*Blood Transfusion in Acute Purpura. E. Meulengracht.—p. 453.
Research on Sugar Content in the Blood. K. M. Hansen.—p. 455.
Technic of Intravenous Injection. O. Haslund.—p. 458.
Arsphenamin Injection Technic. E. Jarløv.—p. 459.
Justice and the Insane. H. Helweg.—p. 461.

Acute Thrombopenic Purpura Treated by Blood Transfusion.—Meulengracht's male patient, aged 18, had acute thrombopenic purpura with absence of blood platelets and of coagulation, and lowered capillary resistance, indicating capillary changes and lack of some component of the normal plasma. The febrile condition of the patient excluded blood plate regeneration through protein shock. Transfusion of blood from the father proved so successful that he recommends it early in severe cases of purpura as a routine procedure.

85: 483-500 (July 12) 1923

*Production of Sterile Material for Injection. Walbum.—p. 483.
Factory Tablets and Pills Often Slow to Disintegrate. Winsløw.—p. 485.
Treatment of Leg Ulcer by Massage and Mobilization. H. Bisgaard.—p. 487.

Production of Sterile Materials for Injection.—Walbum says that the injection fluids prepared by individual pharmacists, lacking knowledge of bacteriology and theoretic physics, are not properly sterilized, and serious consequences have been reported. He intends to experiment with preparation of reliable injection fluids and will announce the results later.